Products finishing

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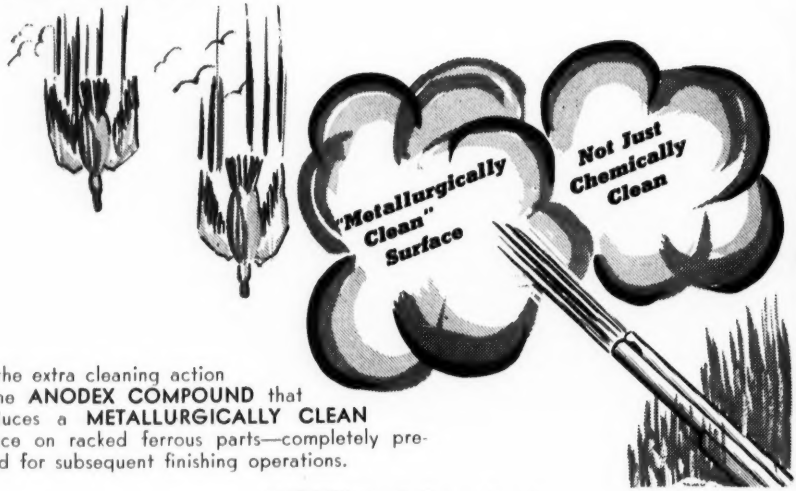

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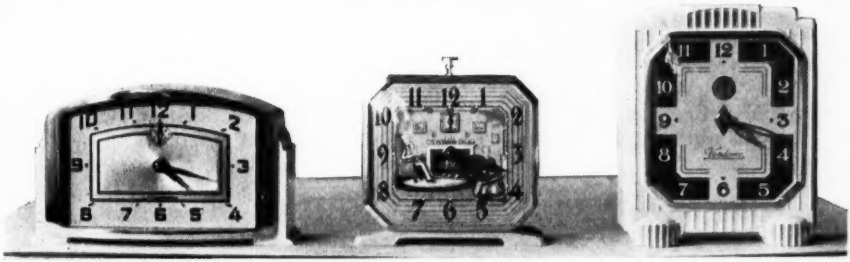

Timely Finishes for Lux Timepieces

By R. J. DOUCETTE

Lux Clock Manufacturing Company, Waterbury, Conn.

AS modern as the minute to which their hands point, the clocks made by the Lux Clock Manufacturing Company are given attractive finishes of bright plating and enamels in a variety of colors. In fact, the quality and style of the finish has become so important that a large part of the plant is occupied with cleaning, polishing, and plating equipment and the spray booths and baking ovens required for the application of enamels.

Many of the clock parts, such as the bases and cases, are die castings, and these parts must be polished before they are sent to the finishing departments. The polishing equipment includes a battery of 12 "Rite-Speed" polishing machines, shown in Fig. 1, arranged so that one blower pipe can serve four polishing wheels. The blower system is of ample size for 24 wheels. Adequate lighting is assured by an installation of Curtis inverted lights, designed so that the light floods the work without casting heavy shadows.

The illustration Fig. 2 shows the line of tumbling barrels used to dry

Fig. 1—View of polishing Department. Note the inverted lights, which flood the work with light without casting heavy shadows.

the parts after cleaning. The barrels are of ample size to handle the small parts used in the manufacture of small clocks.

The plating equipment, Figs. 3 and 4, is of the most modern design. The Hanson - Van Winkle - Munning automatic plating machine is of 1,050 gallons capacity and operates on 600 amperes at 6 volts. Two units are employed, one for brass and one for nickel. The brass parts are usually given a 30 - minute plate, in which 0.0004 to 0.0005 in. is deposited.

The arrangement of the plating equipment is presented in the drawing Fig. 5, which shows a double set of tanks from the cleaning tanks, at the beginning of the circuit, to the single hot water rinse tank at the opposite ends. After leaving the hot water rinse, the parts are passed

Fig. 2—After cleaning, the small parts are dried in these tumbling barrels.

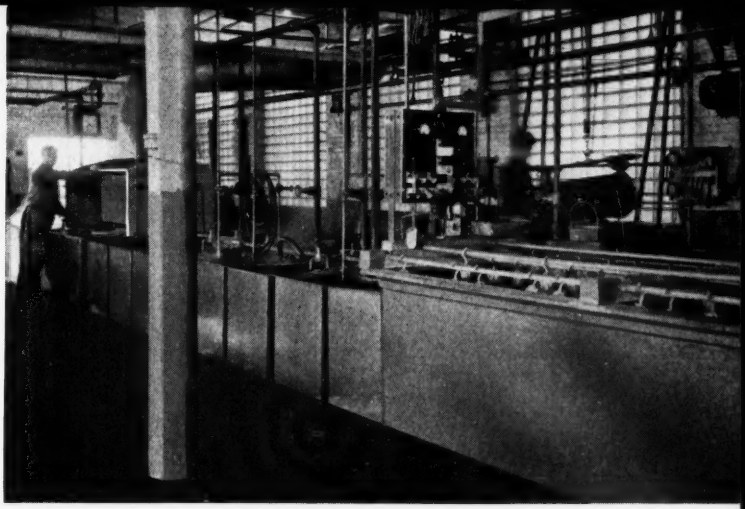

Fig. 3—Line of rinse tanks and plating tanks.

to one of the two plating tanks, depending upon whether the parts are in the uncoated state or whether they have been given a nickel plate.

In starting work through the plating circuit, the parts are left in the first cleaning tanks from 7 to 10 minutes. They are then given a strike in the electric cleaning tank and from there on are simply dipped in the successive baths.

Handling the work through the various cleaning and rinsing operations must be done by hand; it is impossible to make this work automatic, due to the necessary variation in the sequence of operations. Some of the work is brass to be plated, and some is steel to be lacquered, consequently the preliminary operations cannot be identical. Some of the work, being too fragile for barrel cleaning, must be cleaned by dipping. Parts that are to be lacquered must in many

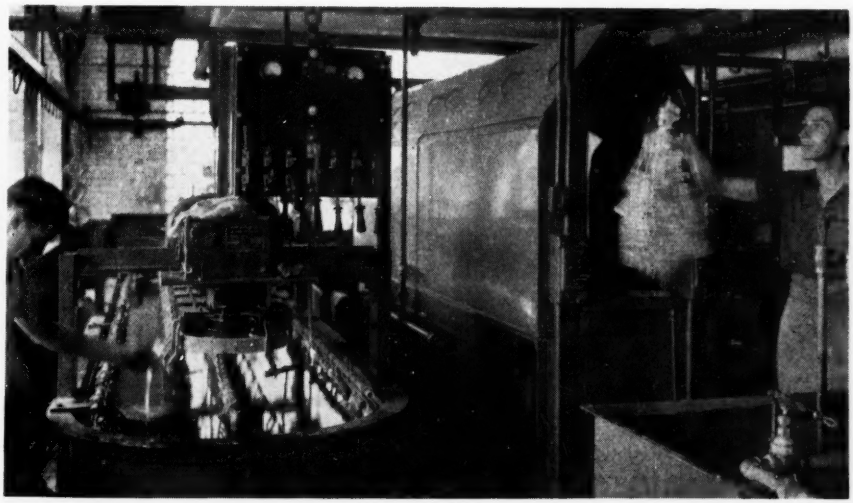

Fig. 4—The drying unit is located between the automatic plating machines.

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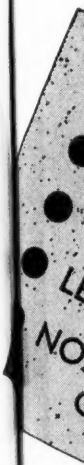

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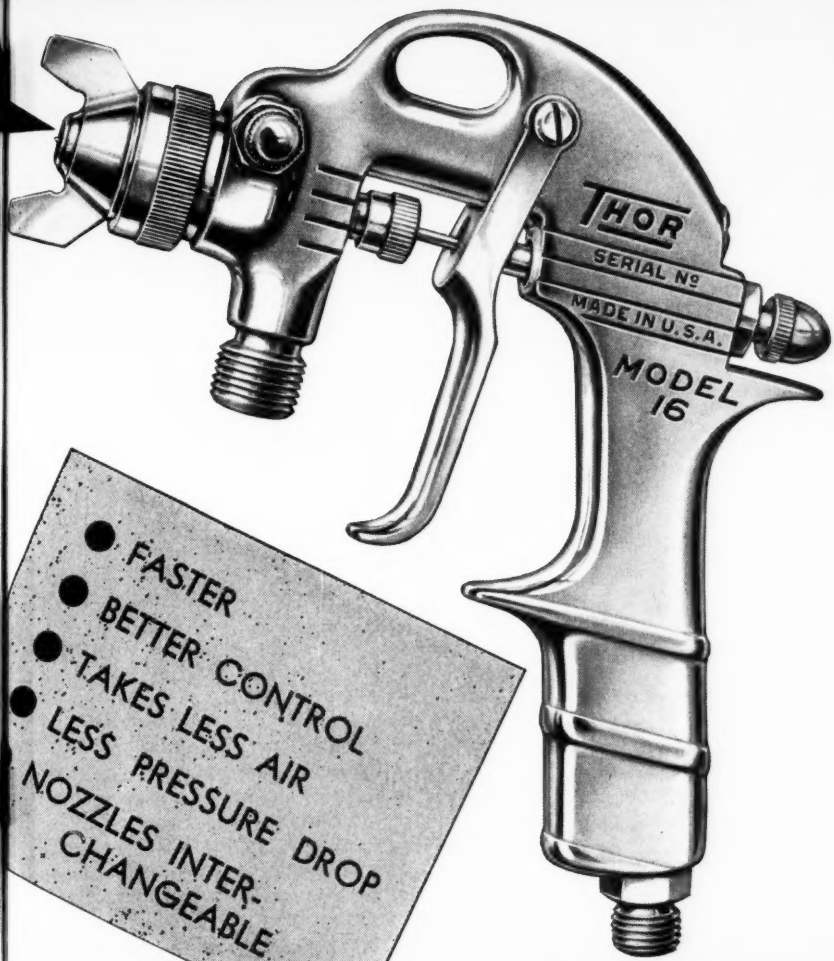

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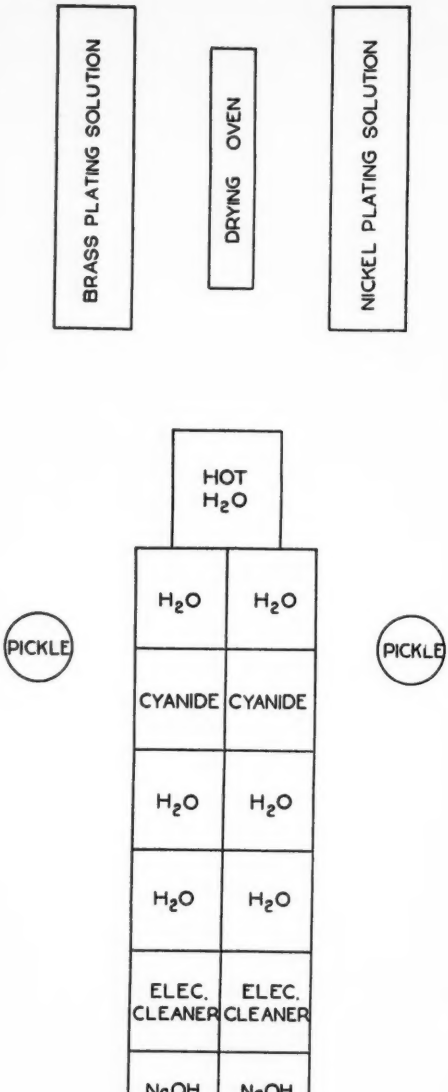

Fig. 5—Drawing showing layout of plating equipment.

cases be given a soap finish to prevent oxidation, and then must have the soap cleaned off so that they can be lacquered.

Between the plating tanks is located the dryer, which can be seen at the right rear in Fig. 5. This piece of equipment is known as a "No-Dust" dryer, and is built by Metalwash Equipment Company. Heat is produced by steam coils, and the drying action is aided by a Buffalo fan. Most of the work that is passed through the dryer is work that has been soap-finished.

The greater part of the cases, bases, and faces of the clocks that are made in this plant are finished in colors and in the form of lacquers. The lacquer department is modern in its arrangement, consisting principally of two rows of individual spray booths and a drying oven with two belt conveyors to transport the parts to and from the booths and to the oven. The rows of spray booths are shown in Figs. 6 and 7.

An individual blower built into each booth keeps the surrounding atmosphere free of lacquer fumes, and the air line at each booth is equipped with a Purolator to remove all moisture, oil, or other foreign matter from the air as it is fed to the spray gun. Each spray gun, as shown in the close-up view, Fig. 8, is suspended on a heavy coil spring which while not strong enough to keep the gun suspended alone, aids considerably in holding the gun steady at

Fig. 6—Line of lacquer spray booths for lacquering small parts.

spraying position and thus reduces fatigue that would be caused by holding the gun by hand alone for the major part of the day.

The spindle supporting the small table or other work-holding device extends downward through the bed of the booth. To the bottom end of the spindle is attached a friction disc which can be raised or lowered by a slight movement of the operator's foot to move it into or out of contact with the pulley on the small motor which furnishes power. Thus the work can be started revolving when the operator is ready with the spray gun, and stopped again when the operation is completed so that the finished workpiece can be exchanged for a new one.

As the spraying operation on each piece is completed, the piece is placed on the belt conveyor, which runs parallel to the row of spray booths, and is transported to the loading end of the drying oven. The belt is 30 in. wide and travels toward the oven at a rate of two feet per minute. At the loading end of the oven the pieces are transferred to the oven conveyor, a view of which is shown in Fig. 9.

The drying oven is a 20-ft. gas-fired unit manufactured by the Crawford Oven Division of the American Machine and Foundry Company. Thorough baking in the shortest possible time is achieved by maintaining the temperature at a constant level of 190 deg. F. Nine minutes is the usual amount of time required for drying the major portion of the parts that pass through this oven. The smooth finish on the finished parts is

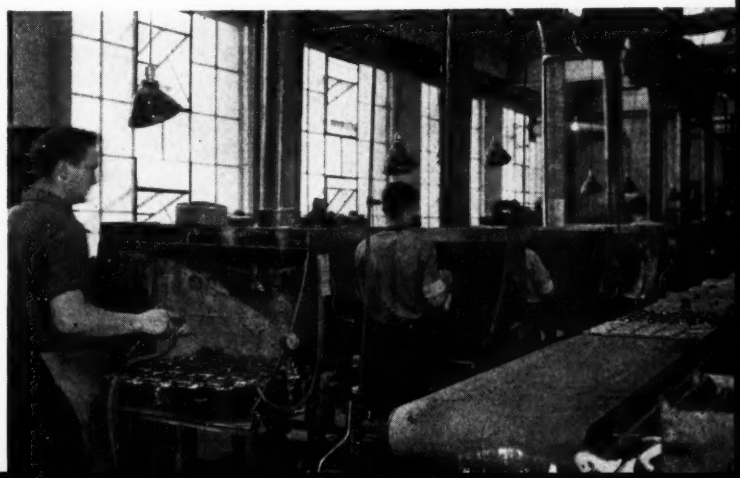

Fig. 7—Line of spray booths for lacquering clock cases and larger parts.

Fig. 8 — Close-up view of spray booth showing arrangement of equipment.

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evidence of the careful finish application and careful processing employed by the trained workmen at the Lux Clock Manufacturing Company. Following the baking operation, the parts are transferred to the assembly department.

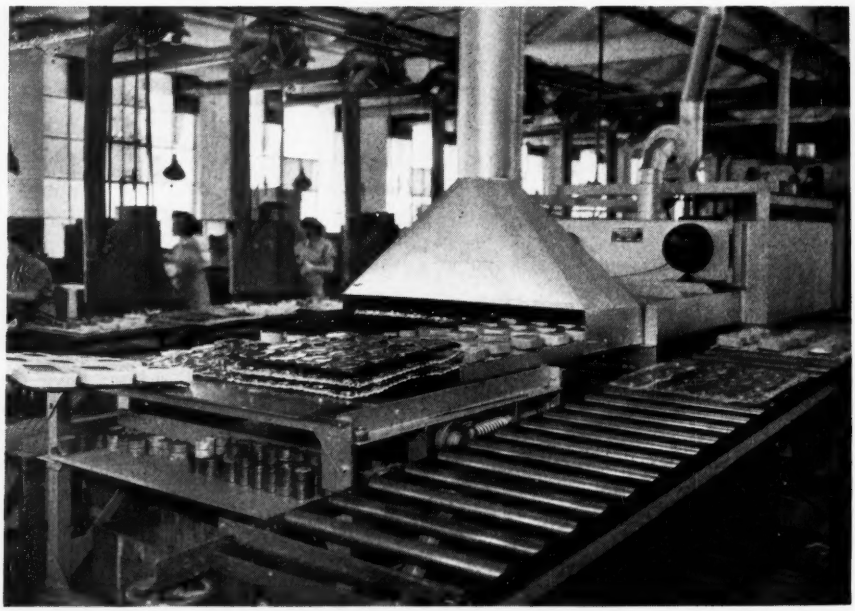

Fig. 9—View of drying oven from loading end. The workpieces are located on wire trays which, when placed on the roller bar conveyor, roll toward the loading end of the oven.

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Barrel Finishing of Metal Products

Additional factors in the finishing of plastics.

By H. LEROY BEAVER

IN the June issue of PRODUCTS FINISHING we discussed at considerable length some of the principal factors relating to the barrel finishing of plastic materials, but in order that the readers of this series who might be interested in this phase of finishing might have more complete data, we feel that some additional points should be stressed to make the picture more complete.

In the first place, those catering to the trade engaged in finishing of plastics have first to sell what we might aptly term a "method." This simply involves a plan of procedure to be followed step by step until the parts reach their final completed stage. We know of no patents applying to such a method and we doubt seriously whether a patent could be obtained, for the reason that a great many years ago Winfield Parsons made the claim that he was the originator of barrel finishing metal products both from the point of view of cutting down to remove a part of the surface, as well as the subsequent operations of barrel finishing to secure a highly lustrous surface finish.

His claims, of course, were not allowed, and this left the market free for a great many years up to the time of the adjudication of the patent issued to Jean Uebersax covering the operation of the Tahara Automatic Silver Burnishing Machine Process, which applied to a process for maintenance and polishing of hotel table silverware. Many thought this patent related to the instrumentality itself, but the patent in truth was a method or process patent covering the technical operation of the machine for producing the process itself. What we now have in the matter of barrel finishing of plastics is really a process or method promulgated in the main by only two principal suppliers in this country, and these methods seemingly run almost side by side in their operating factors.

We mentioned in our previous paper what seemed to be the combined thought of a great many of those interested in securing information covering plastics finishing — that too great a veil of secrecy has been placed around the entire subject. They felt that it should be all brought out into the open so that those interested

might be able to judge whether they wanted to go into such procedure of finishing or adopt a method more suitable to their general production practice.

One can easily see why a great deal of information is withheld, because to even simply describe the various steps in the process to any prospect amounts to an almost complete disclosing of what it is necessary to do. From that point an interested prospect can proceed "on his own" and work out something that might be satisfactory for his particular work. Consequently, suppliers of barrels and materials have tried to be in a position where an order was almost assured before discussing the question to any considerable understanding length. True, there are some who would gather as much information as possible respecting a process and then construct their own instrumentalities for carrying out the process, but this has been done, we expect, since business began to function at all, hence it would not be strange if this also applied in the finishing of plastics.

This same sort of thing prevailed in the early days of barrel finishing of metal products, and at least to some extent applies even today. We have been called into consultation in one plant after another, where we have first been cautioned that their process had been developed by themselves and was known to no other manufacturer. When we finally saw it in operation, in case after case, we found it to be comparatively obsolete, far behind the more modern procedure which prevails generally.

In connection with this whole subject of secrecy we cannot ever forget a remark made by that master of research, Mr. Charles F. Kettering of General Motors Corporation, who, in

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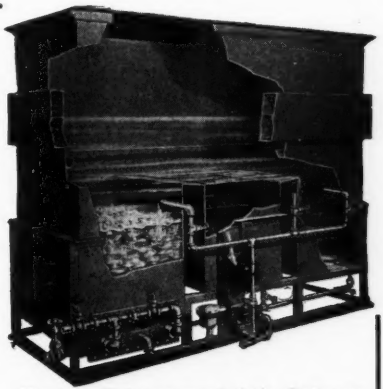

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speaking before a gathering of the Society of Automotive Engineers, said, among other things, "When you lock the door of your experimental department, be pretty sure that you don't lock out more good ideas than you lock in."

The process of finishing plastics materials fundamentally follows the same course of procedure as that followed in the finishing of metal products in barrels. We have repeatedly stressed the importance of the regulation of the control of the speed of the barrels in metal finishing based on the type of part being finished, and this same underlying factor applies as well in the finishing of plastics. The type and grain of abrasive used in cutting down operations, the shape and size of the weight-adding medium, and the character of the polishing medium all apply in about the same degree of importance in plastics finishing as they would apply in the case of the finishing of metal parts.

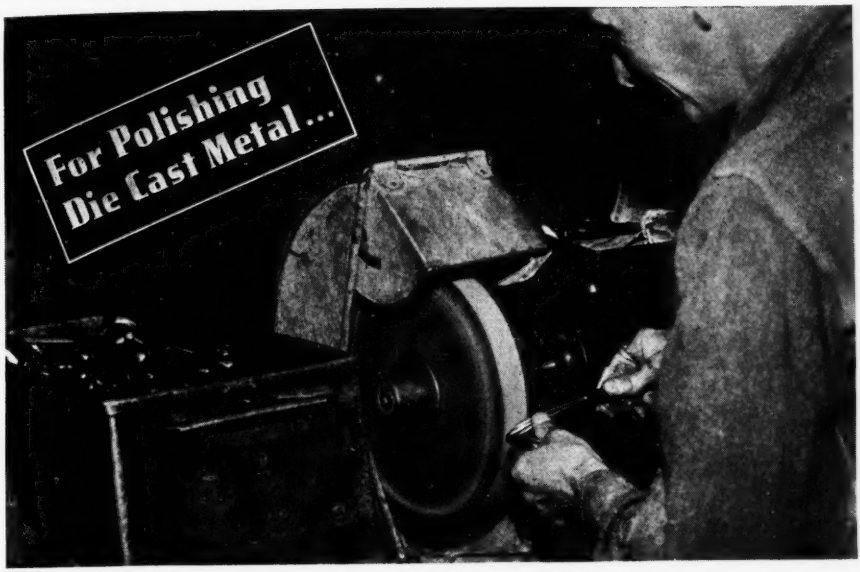
In the matter of barrels for carrying out the process, we have been asked why they should be divided into compartments as most of them are. Well, there are two reasons for this: one is so that two separate kinds of parts may be operated at the same time without mixing, such as bakelite in one compartment and a phenol resin in another, each requiring a separate type of finishing material; or, perhaps a more important reason, so that greater concentration of pressure can be placed against the parts by operating them in a single compartment rather than in a full width barrel.

It seems to be generally accepted that a barrel with a diameter of 30 in. is the best for plastic finishing. Such barrels are generally about 36 in. long which, with the division in the center, gives us two pockets or compartments each 30 in. in diameter and 18 in. in width. It will be noted that this follows very closely the type of barrel which we recommend as the best all-purpose barrel which is 30 in. in diameter by 16 in. in width.

With the partitions, we have in effect, the same action as though we were operating two barrels. The filler and burnishing medium, whether it be wood pegs, blocks or wood balls, exerts a more even, uniform and better pressure in the comparatively narrow type of barrel than if they were to be operated in a barrel without partitions. In the latter type, the pressure is distributed over too great a length when compared with the diameter of the barrel, and the results of this are, naturally, that it requires a considerable longer operating time to produce a given result. Eventually we would not be surprised to see plastic finishing barrels increased in diameter up to 36 in. and even 42 in., with the current width of 16 in. so as to obtain greater pressure from the wood blocks, pegs, balls, and so on.

It is interesting to note the variation in weight as it relates to bulk when applied to a comparison between steel burnishing materials and the wood materials used in plastic finishing. Steel burnishing materials, irrespective of size or shape, will average 100 lbs. to the peck, but the wood burnishing materials used on plastics will average about 100 lbs. to each three bushels of wood parts. In other words, in barrel finishing of metal products, one bushel of steel burnishing material will weigh close to 1,200 lbs., whereas three bushels of wood pegs, blocks, and so on, will only weigh about 100 lbs., or only one-twelfth of the weight of the steel burnishing material.

The above information should enable the reader to immediately judge



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one of the reasons why the plastics operation requires much longer operating cycles than are generally used in the finishing of metal parts by the barrel method. A 16 x 30 in. barrel for steel burnishing materials will generally operate most effectively when loaded with from 900 to 1,000 lbs. of burnishing materials, or nine to ten pecks. Practically the same size of barrel when loaded with the same bulk of wood parts, pegs, blocks, and so on, would only have a weight-carrying capacity of from 72 to 80 lbs. of materials. When both are operated at comparatively the same rate of speed it will be easily seen that on plastics, even though they are lighter in weight than metal parts, the length of time required for their finishing must of necessity be longer than on metal parts operated in the same way.

Now, if we assume that the average of plastic parts susceptible to finishing by the barrel method, whether they be turned from the rod, molded, sliced, or cut with a flexible wheel, average from 25 to 30 lbs. per peck, we will immediately sense that there must be too great a variation between the bulk weight of the plastic parts and the wood-formed materials used to supply the pressure re-

Porcelain Enamel Mural

DANIEL BOZA, artist, is shown applying colors to a 12½ ft. x 17½ ft. Porcelain Enamel Mural for Ferro Enamel Corporation, Cleveland, Ohio, in its booth in the Home Furnishings Building, New York World's Fair.

Mr. Boza applies the inorganic or mineral colors to preformed metal panels. The colors are then all fired at one time in a large porcelain enameling furnace, at a temperature of approximately 1,600 deg. F. Previously, enamelers have fired their colors one at a time, using stencil or screen-method of application. The new method is made possible through recent patents of Bomat, Inc., Cleveland, Ohio.

quired for the finishing operation, and that these two factors must be brought closer together to obtain the most effective operation.

We can see where, in many cases, the operating condition would almost be the reverse in the case of plastics to that which we find in the finishing of metal products. In finishing aluminum, for instance, the weight of the parts per unit of volume would be far less than the burnishing material, whereas in the case of plastics, the weight of the parts would be proportionately greater than that of the burnishing material used. Where in the case of finishing aluminum, the parts will float on top of the mass due to their insufficient inertia. For the same reason the plastic parts will ride the bottom of the barrel because the polishing medium would in the same sense float on top.

The only yardstick we have to gage the proper variation between the parts to be finished and the finishing material is that the finishing material should be such that its specific gravity be enough less than the parts so that the parts will float or be centrally suspended in the burnishing mass. We have been able to work out this problem in the matter of finishing of metal parts, but we very definitely are not satisfied with the wide variation between the wood parts and the plastic materials, and there must be additional research to bring these two closer together if we are to have the most effective barrel finishing operations on plastic materials.

This subject is agreed on by most finishers of plastics to whom we have talked, but they raise the point that if the weight factors are brought too close together, the greater weight will set up greater friction between the burnishing medium and the parts. Hence, the heat generated will be so

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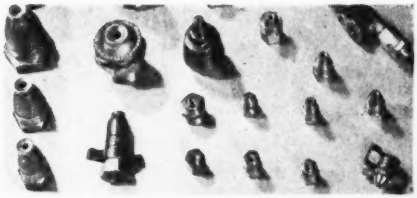

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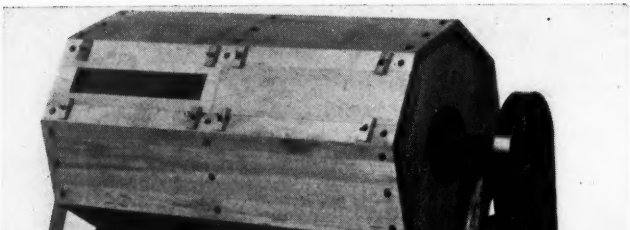

Fig. 1 — Illustration showing a two compartment plastics finishing barrel.

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great as to soften the plastic parts and prevent the securing of the final highly lustrous finish, which is only obtained when the parts are comparatively cold.

If this is the only objection, it should not be insurmountable, because the problem only resolves into that of exhausting the excess heat from the barrel. While the substitution of a panel screen door to secure this objective may be well enough in some cases, there are more effective means for exhausting this excess heat, such as a cold air blast through the hollow end shafts of the barrel, or the addition of air ports screened, of course, and cut through the end plates of the barrel. These might even be fitted with hoods so that as the barrel revolves, a continuous current of cold air is forced into the barrel.

"But," say the manufacturers of equipment, "we still have the weight factor missing from the burnishing material." Lignum vitae or iron wood might answer the purpose, but it would prove too expensive both in raw material cost and in the cost of fabricating it into proper shapes for the work. Polished corazo nuts, commonly called vegetable ivory, might be used, but the material and processing cost here, also, is deemed too high. Therefore, we are in a position that requires additional research first into barrel ventilation to exhaust heat, and the determination of a suitable polishing medium of more nearly the same specific gravity as that of the parts to be finished before we will be able to record additional progress in the matter of the barrel finishing of plastics.

To those who are experimenting along the lines on which we have just commented, we would pass along this thought. In the finishing of rice, the harvested grain which is dull yellow or light brown in color is polished and the brown cast removed by tumbling in barrels with steatite, or magnesium silicate, commonly known as talc. This is the softest polishing medium we have for use in industry, registering No. 1 on Mohs scale of mineral hardness. Rice, in bulk, will more nearly approximate the average plastic than any material we can think of and should give the necessary weight in relation to bulk to secure faster finishing action, and in addition, its form or shape is all in its favor. The grains are porous and would absorb the wax polishing cream in much the same sense as wood fibre. We have never tried out any runs in material with it, because,

after all, we cannot conduct all of the research work, and there are only twenty-four hours in each day, but to those who would be interested in conducting some research on their own account, we would be glad to assist in any way we can.

We cannot in any sense subscribe to the idea that only steel burnishing materials can be successfully applied to the finishing of metal products, and that only wood burnishing materials can be applied to the finishing of plastics. This constitutes an entirely too narrow and restricted field of application. If nature can produce a plastic material by combining the fibre of sugar cane, known as bagasse, with ground corn cobs suitably treated chemically, then might it not be possible that nature can just as well provide a material for finishing this same plastic?

It would seem that the description of what we termed a screen panel in a barrel to permit the introduction of air in the final operation was not entirely clear to some of the readers of the series and, accordingly, we are reproducing a picture of a two-compartment plastics finishing barrel in Fig. 1. In one of the sections, the solid lid has been removed and a screen lid inserted, which should be perfectly clear, but it will be noted that only a certain volume of cold air can be introduced in this way, and that additional panels should be screened to lower the temperature within the barrel, and so permit the use of a heavier medium for carrying out the actual polishing process.

Considerable interest has been manifested in the matter of removing the fins on molded plastic parts, and we are asked to clarify just what we mean by a "screen barrel." Generally this is simply an eight-sided barrel fashioned much the same as the plastics finishing barrel itself,

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but in skeleton form. The inside of this barrel is covered with ordinary galvanized screen wire (the ends may be left solid) of 12 to 16 mesh. By operating the plastic parts in such a barrel, the meshes of the wire act in much the same way as a file and if the dies are not too badly worn so that a heavy flash is produced, such a barrel may be depended on to remove the average thin fins very quickly and effectively.

In a case that has very recently come to our attention, the fins of plastic parts (in this case of bakelite) were quickly removed by simply tumbling them in an oblique tilting type tumbling barrel with a light gauge steel shell. Makers of dies for plastic molding generally, wherever possible, bring the fins at what we might term the "assembly point;" that is, where the plastic part is attached to some other product, such as the handle or regulator on an electric toaster. In such cases, provided the dies are kept in proper condition, a single simple barrel operation such as described above will suffice.

Some dissatisfaction has been expressed by some users who, for example, have started with bakelite and used the process prescribed for finishing parts from this material, and then later switched to some other form of plastic requiring a different treatment, which they have sought to finish by the same procedure as that used on the bakelite parts with, of course, very indifferent results. It will always be found best to go to your supplier of plastic finishing materials when a change is to be made in the type of plastic itself to first learn whether the same procedure applies on the new material, and if not, what changes are necessary.

Eventually, after we have had an opportunity to conduct some additional research on the subject, we hope to be able to co-ordinate all of the material and work it into a form of procedure to be applied to the better known and most widely used forms of plastic materials, and with the hope that the finishing of plastic materials will not have to go through the same trying series of "growing pains" as has the subject matter generally as applied to the barrel finishing of metal products.

As usual, PRODUCTS FINISHING invites its readers to submit their problems in plastic finishing and insofar as the process has been developed, we will be glad to supply the best information relative to procedure and materials that current research has been able to develop.

The writer wishes to acknowledge the courtesy of Mr. Rudolph R. Seibert, Rochester, N. Y., for supplying the illustration of the plastic finishing barrel with screen panel door.

"Bonderizing." This is the title of a catalog describing the Parker Process that holds paint to steel and resists rust now being issued by Parker Rust Proof Company, 2172 E. Milwaukee Ave., Detroit, Mich. Every year sees new advances in scientific methods of rust control. This new catalog outlines the most recent developments in a modern process for finish betterment.

"Bonderizing" describes the latest improvements that result in greater efficiency, lowered installation and operating costs, and methods of application that widen its scope of usefulness to include hot or cold rolled steel, as well as zinc coated or die cast surfaces.

This catalog indicates the hundreds of products to which Bonderizing is applied and lists some of the world-known corporations that use it as a necessary step in their finishing systems.

Every factory executive or technical man responsible for metal finishing is entitled to have a copy.

Copies will be sent free upon request by writing to Parker Rust Proof Company, 2172 E. Milwaukee Ave., Detroit, Michigan.

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"Blushing" on Lacquered Pen and Pencil Parts Cured by Dehumidification

By HENRY HARTMANN

The Brooklyn Union Gas Co., Brooklyn, N. Y.

THE lacquer room seems to be a mighty popular playground for prankful "Old Man Humidity." To outwit this troublesome fellow during the summer when he's most bent on interfering with production lines, Eberhard Faber Pencil Co., 37 Greenpoint Ave., Brooklyn, N. Y., nationally known manufacturer of pencils and erasers, recently found it expedient to call upon one of the youngest newcomers to the family of production control methods—dehumidification air conditioning. The installation, and what it means to the Eberhard Faber Pencil Co. is worth a second look, and may carry the kernel of an idea that can be adapted to many individual finishing problems.

Many a time, during blistering summer months, this company found that high humidities caused "blushing" or the condition of "orange-peel finish" on light lacquered parts in a manner to make it impossible to continue finishing until the weather wave passed. This meant intermittent operation of the lacquer room, reacting adversely upon the normally smooth, efficient production plan. It affected workers' time schedules; it affected the operating expenses for the lacquer room; it affected percentage rejects; and it affected storage and shipping departments. In short, it cost this progressive firm money.

An analysis of the problem revealed that the lacquer, in drying, caused a sufficient cooling effect upon small thin-wall metal parts, such as pen and pencil fitments as well as upon parts of low heat conductivity, to bring the temperature at the lac-

Fig. 1 — Illustration showing equipment installed to provide conditioned air to lacquer spraying installation.

quered surface down to a point below the dew point of the atmosphere in the room on excessively humid days. As a result, water was condensed out on the drying surface, and it was this moisture which caused the trouble. On heavier metal parts, the effect was not noticed, for the heat conductivity and heat content of the part were sufficient to counteract the cooling effect as fast as the drying process developed it. But extremely thin pencil casings which could not rapidly enough dissipate the cold developed by the evaporating volatiles in the lacquer were the main production item.

Obviously, the answer lay in reducing the moisture content of the atmosphere in the lacquer room so that the dew point would be maintained safely below the lowest surface temperatures developed on the work in the lacquer booths. It was found that different critical dew points existed for different lacquers and types of work—the lowest such temperature being 62 degrees Fahrenheit.

To accomplish the job, that is, to remove the moisture from the lacquer room air and thus sufficiently lower its dew point, a gas-fired silica gel dehumidifier was installed. The unit, a Bryant No. 27, contains beds of the material, silica gel, which absorbs great quantities of moisture from any air flowing through it. Outside air is drawn in by a blower at the rate of 2,700 cu. ft. a minute, dried by passing through half of the gel beds, and cooled down to normal temperature in a "cooler" consisting of numerous banks of finned metal tubing through which cold water is circulated. When one group of beds of silica gel has absorbed its full capacity of water, an automatic mechanism diverts the incoming air so that it passes over fresh beds, while the wet ones are dried or "reactivated" for the next cycle of air heated by the combustion of city gas. The unit is self-contained and fully automatic. When operating at full tilt the dehumidifier uses 500 cu. ft. per hour of 540 BTU per cubic foot gas. Seldom, however, is this much fuel required, for only on the severest of days need the gel unit function at capacity, and during dry days need not function at all. In an average summer season an installation of this type would need to operate only approximately 250 hours.

Although the silica gel unit delivers 2,700 cu. ft. per minute of dried air into the lacquer room, the exhaust blowers on the several lacquering benches remove air from the room at a rate of 5,000 cu. ft. per minute. Thus, 2,300 cu. ft. per minute of humid outside air filters into the room through doors, windows, and walls. The in-filtered air mixes with the dried air from the air-conditioning machine. It is the final "mixed" air which surrounds a humidistat, the workers, and the drying lacquered parts—and is the "control" air.

The humidistat, located five feet from the floor in the center of the lacquer room, is set to keep the mixed room air at 50 per cent relative humidity. Of course, the air flowing from the silica gel unit must be drier than this final condition. In this manner, the dehumidifier is kept operating at its most efficient level and is required to carry only slightly more than half the air needed for circulation through the 75 ft. x 25 ft. x 10 ft. lacquer department.

Temperature is no problem. The rate of flow of cold city water at approximately 60 deg. F. through the cooling coils between the dehumidifier and the dried air duct is generally regulated to keep the temperature of the dried air near the tem-

perature of the outside air with which it mixes in the lacquer room. Should the day be unduly hot, it is feasible to keep the lacquer room temperature between 80 deg. F. and 85 deg. F.—a comfortable condition with the humidity as low as it must be to prevent "blushing."

Dictionary of Scientific Terms. A dictionary of scientific terms as used in the various sciences has been written by C. M. Beadnell, C.B., F.Z.S., and is now being issued by Chemical Publishing Co. of N. Y., Inc., 148 Lafayette St., New York, N. Y. This is not a dictionary into which one merely peeps to ascertain the correct spelling or meaning of a word, but is a book which will lure the reader on to a great variety of most interesting facts not generally known. The book tells in simple language of the size and weight not only of the smaller entities, protons, electrons, and atoms—but also of the larger, the Earth and the Solar System. It describes heavy hydrogen, heavy water, chemical elements that are changeable into other elements, and so on.

This book is available at three dollars per copy and can be obtained by writing to Chemical Publishing Co. of N. Y., Inc.

Beckman pH Indicator. A unit for the continuous measurement of pH by means of the glass electrode is described in Bulletin No. 16 which is now being issued by National Technical Laboratories, 3330 E. Colorado St., Pasadena, Calif. The unit is designated as the "Beckman pH Indicator." The Beckman pH Indicator operates directly from an A.C. lighting circuit and is said to provide complete automatic operation with minimum attention.

Fully automatic temperature compensation is provided. The electrodes may be installed on grounded flow lines and vessels. The accuracy of the unit is said to be unimpaired at 100 per cent humidity.

A copy of Bulletin No. 16 will be sent free upon request.

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Finishing Material Artificially Aged by Salt-Spray

IN the constant search for better finishing materials for use in the manufacture of lighting units, especially those which normally operate outdoors, engineers of the Westinghouse Lighting Division at Cleveland, Ohio, use many tests simulating actual operations conditions, but at a much accelerated rate. One of these is a salt-spray test, which gives an experienced observer an indication of the extent and rapidity of corrosion that may be expected of material in service in the field. It is particularly valuable because it will reproduce in a few days or weeks conditions that might be reached only after years of service.

The salt-spray testing apparatus consists essentially of a pump supplying compressed air to a nozzle placed in a bath of salt water, forming a cloud of salty vapor that is cooled in a tank housing the materials under test. Compressed air is supplied to the nozzle by a small motor-driven pump at from 30 to 50 lbs. per sq. in. pressure. The nozzle is similar in action to a paint spray gun. The stream of escaping air passes over the restricted opening of a tube extending up from the salt water bath, pulling the water through the tube and vaporizing it as it leaves the opening.

During the operation, the tank is completely filled with a dense cloud of vapor. The tank is built with a hinged top without air vents, thus allowing the vapor to escape only around the edges of the hinged top. This produces as nearly uniform a cloud inside the tank as it is possible to obtain and insures even

In this tank, metals and finishing materials are exposed to a dense cloud of salty vapor for several days. Such a test corresponds to years of actual weathering.

corrosion of all parts of objects under test. All test objects are supported on glass strips mounted edgewise just below the center of the tank.

Sodium chloride, the common commercial table salt, is used in the mixing of the salt solution. It is best for testing materials used in the general service. For some tests of marine applications, sea salt, such as Turks Island sea salt, may give a more accurate result.

Many types of materials are tested. Paints, varnishes, and lacquers represent a large part of the work. These are sprayed, dipped, or brushed on flat test panels and dried, according to the treatment desired. These panels are then supported vertically in the salt-spray tank so that all parts of the panel have an equal exposure. The criterion in these tests is the length of time necessary for the paint to deteriorate and lose its finish or its value as a protective coat, depending upon the application. Metals, particularly when plated, are placed in the tank in the form of test panels in the same way as paints. The criterion in this case is a measure of the loss in weight or the decrease in the thickness of the plating as a function of the time of exposure.

Whenever possible, materials are tested on flat panels which can be supported vertically in the tank. This leaves no horizontal or slanting surfaces on which the salt can deposit and provides a more accurate and reproducible test. In the case of irregular objects allowance must be made for the shape and position of the various surfaces. During a test the salt spray is operated continuously from the time of start to the end. This means days, weeks, and sometimes even months of continuous operation and tells in the shortest possible time what may be expected of a material after years of service.

DID YOU KNOW THAT—

—Modern production equipment has been applied to the finishing of clocks? See page 9.

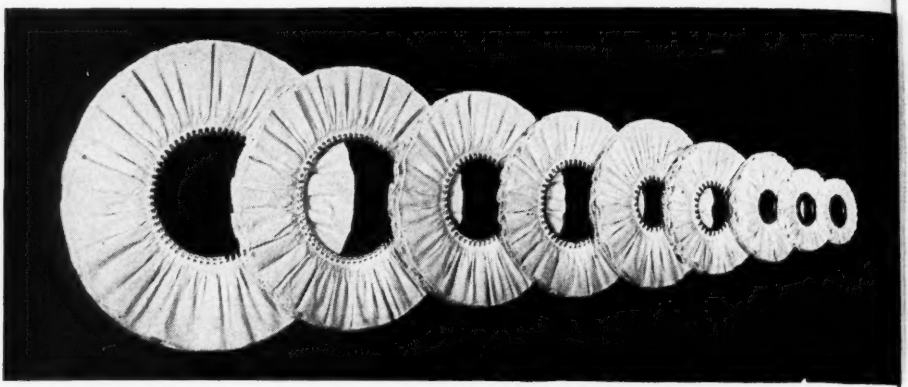
—The process of finishing plastic materials follows fundamentally the same course of procedure as that followed in the finishing of metal products in barrels? See page 20.

—"Blushing" on lacquered parts can be prevented through the use of a dehumidification system? See page 27.

—Free information can be had on practically any subject dealing with the metal-finishing industry? See page 62.

—PRODUCTS FINISHING is editorially designed to assist you in becoming a better informed finishing department executive and thus a more valuable asset to your company?

AIRWAY *Ventilated* BUFFS



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Permanent tapered spindle adapters supplied on all small sizes for use on tapered spindles.

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1. Permits 50% to 100% higher speeds.
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Use half as many sections.
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VENTILATION

The AIRWAY BUFF is used with metal center plates and flanges so arranged as to allow the centrifugal action of the buff to draw air in at the sides of the wheel and pump it out radially between the buff sections. This circulation of air through the AIRWAY keeps it cool under most severe operating conditions, entirely eliminates burning and thus prolongs the life of the buff. This permits 50% to 100% higher speeds.

COMPOUND SAVING

The bias construction of the AIRWAY eliminates ravel and wasting of buff as well as compound.

The ventilating feature keeps the buff cool and reduces the tendency of the compound to melt and be thrown off.

The AIRWAY should not use more than 50% of the compound used with a conventional buff.

OTHER ADVANTAGES

The AIRWAY requires no raking, has a very fast cut and does not ridge the work. It is clean because there are no cross threads to pull out and the composition stays on the buff.

It has a wide face and usually two sections are equivalent to four of the conventional buffs. This should be considered when comparing prices with conventional buffs.

WARNING NOTICE

Jackson Buff Corporation of Long Island City, New York, has rights to U. S. Patents Nos. Re 19,894 and 2,140,208 which have broad claims covering an air-cooled buff having means for the admission of air through the sides of the buff. Owner intends to protect these rights and to stop infringement.

MATERIAL USED

Special sheeting used for cutting or coloring as your requirements demand. All bias cut, no ravel, no waste, no dirt.

Center plates and flanges made to suit the customer's spindle diameters.

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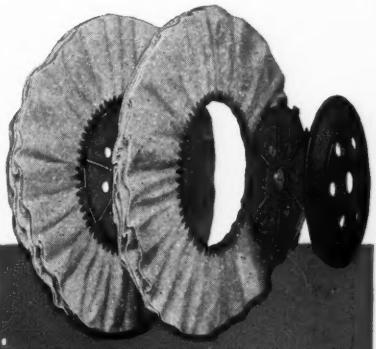

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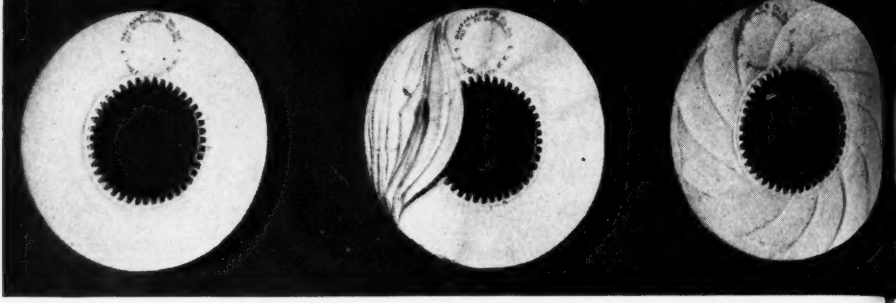

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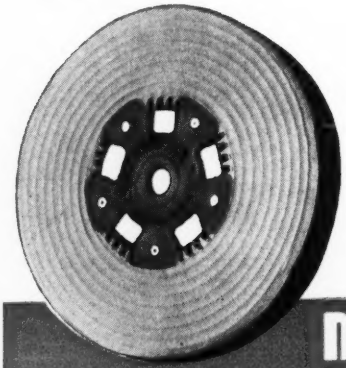

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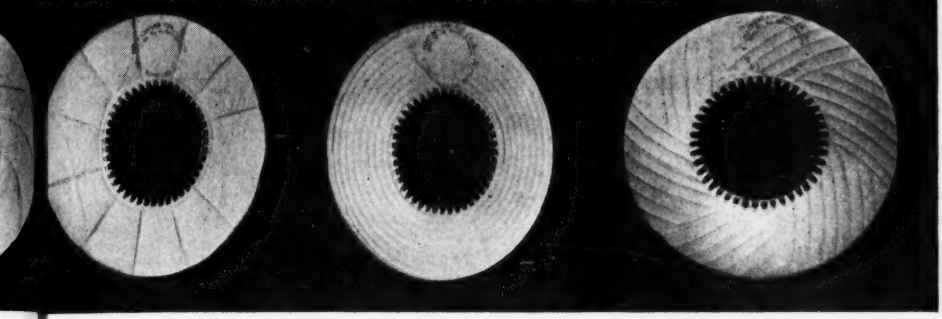

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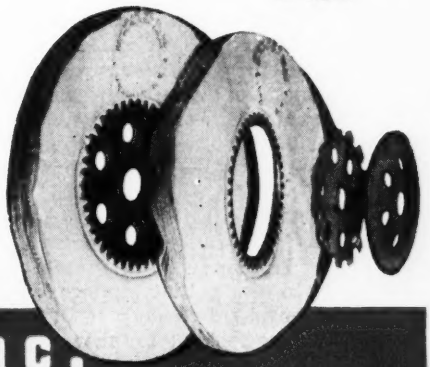

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Job Finishing Shop Expands to Meet Production Demands

By Carleton Cleveland

THE demand for rust-proof treatment of iron and steel products has been growing so rapidly within the past few years that the Western Rust-Proof Company, Chicago, jobbers in this type of work, has found it necessary repeatedly to expand its plant, the latest addition being a two-story section, 25 ft. x 125 ft., erected in the spring of 1937, providing a total manufacturing floor space of 11,375 square feet.

The plant is equipped for three types of work — Parkerizing, Bonderizing, and cadmium plating, in addition to sand blasting and commercial pickling—with tanks suitable for handling production from the smallest screws to units that require a tank 12 ft. long by 6 ft. deep.

Always on the lookout for new developments and improvements in equipment used for rust-proofing, the Western Rust-Proof Company has designed a special machine for cleaning metal parts preparatory to Parkerizing, Bonderizing, or cadmium plating, as too much stress cannot be placed on the importance of having absolutely clean bases for the protective coatings. This new machine is an automatic cleaning unit consisting of direct and reverse current electric cleaners so arranged that the work passes on directly to the pickling tanks and final rinse and then into the semi-automatic plating machines.

The machine in its entirety is some 6 ft. wide by 20 ft. long and is equipped with ventilating hood overhead. Work is suspended on danglers at-

tached to rods which are fed toward the feeding end of the machine from sloping feeding racks, one on each side of the feeding operator. The operator makes only a half turn in either direction to take a rod, and turning back to his original position, places it in the automatic cleaning machine, thus starting the rod with the various pieces on its journey through the successive tanks. On its emergence at the discharge end, another operator is ready to transfer the pieces to an adjacent semi-automatic plating machine or to whatever department they should go.

Close by is a 10 x 10 ft. sand blasting room in addition to up-to-date pickling equipment and also a 12 x 12 air compressor, driven by a 75-h.p. motor, maintaining a pressure of between 55 to 60 lbs. at all times. The pickling department is in a separate well - ventilated room at one corner of the plant.

Parkerizing, as industry knows, is a rust-proofing process accomplished by first thoroughly cleaning the surfaces of iron or steel and following this with successive immersions in tanks containing chemical solutions, and finally applying coatings of dye and oil. Bonderizing, also a rust-proofing process by successive immersions in chemical solutions, after thorough cleaning, leaves a surface to which paint, lacquer, or enamel may be applied as a finishing coat. At the Western Rust-Proof Company, the Parkerizing department has a capacity of 2,500 gallons, while the Bonderizing equipment has a capacity of 3,000 gallons. These together include rinsing and drying equipment. Of the work done at this plant, 35 per cent is Parkerizing, 25 per cent is Bonderizing, with 40 per cent of cadmium plating.

For drying cadmium plated and Parkerized parts a Modine Unit heater is used, capable of carrying 1,000 lbs. of wet metal, with a 1/6-h.p. motor circulating the air and providing 15 changes of air per minute. Heat re-

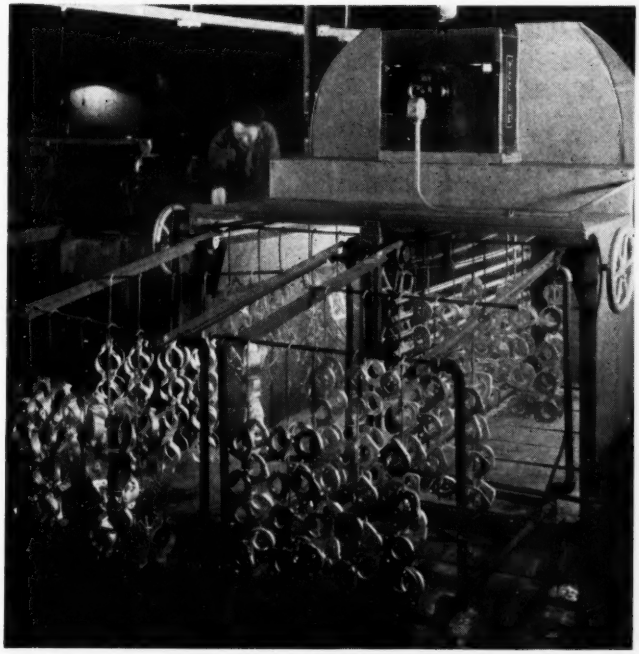

Fig. 1 — Machine for drying water washed parts. The loaded racks are rolled into the machine by turning the conveyor wheels located at each side.

quired depends upon the thickness of the metal, exposure to air stream and whether pieces require slow or rapid drying. The average time is about two or three minutes, and average temperature is from 150 to 170 deg. F. Pieces to be dried are suspended on racks which may easily be rolled into and out of the dryer. This method of hot air drying has done away with the old method of saw-dust drying, and is said to be far superior.

Air hoists are used at the various dipping, washing, and rinsing tanks, baskets and barrels being used for immersing in connection with two and three-unit Udylite Plating Barrel equipment. Air hoists have been found more convenient and practical —one reason being that there is an abundant supply of compressed air at the plant for sand blasting purposes; while another is the need of having equipment that adapts itself to the necessary agitation after the baskets are lowered into the dip to give each piece a thorough flushing. Experience with these hoists has shown that the load also is cushioned and can be gently deposited wherever it is to be placed. Two of these hoists operate on overhead cranes and the others on overhead rails.

The new section houses the shipping room, equipment repair shop, together with some of the plating generator sets, of which there are a total of five of 2,000 amp. capacity. There is a recessed trucking dock within the building, conveniently located at street frontage, giving ample space for two trucks to back in at a time. This has greatly improved facilities for handling products into and out of the plant and is important, since many manufacturers throughout the Chicago area send metal parts to be rust-proofed, after which they are returned to the originating plants for assembly or completion of individual products. The pieces handled are of an almost infinitely varied nature, ranging from types of building hardware to screw machine parts, castings, forgings, and metal stampings of all kinds. The plant is heated by a high pressure stoker-fired boiler with Modine unit heaters at strategic points throughout the plant.

The Western Rust-Proof Company started business in the spring of 1920 in a small building on West Lake Street, representing the Parker Rust Proof Company in the Chicago territory and doing Parkerizing only. At that time Bonderizing had not been developed nor had cadmium plating yet proven practical. By 1924 the business had progressed so that it was thought advisable that the company construct its own building to care for the increasing Parkerizing business. A small one-story structure was therefore erected on West Walnut Street, about a mile west of the old location.

About this time the Udylite Company brought out an improved method of cadmium plating, and arrangements were made to represent this company also in Chicago and its environs. A further development took place — the Parker Rust Proof Company by this time had perfected the Bonderizing treatment for the purpose of providing a chemically treated surface to which paint would adhere. Thereupon the Western Rust-Proof Company also took on Bonderizing work in this section. With the many applications now available to steel and the new uses being developed from month to month, the Western Rust-Proof Company has had a steady and consistent growth.

Mention PRODUCTS FINISHING when writing to advertisers. Your cooperation will be appreciated both by the advertiser and this magazine.

Graining Metal Products

Distinctive Execution of Artistic Effects Characterizes the Skilled Workman and Contributes Extra Selling Appeal to the Finished Work

By Frank V. Faulhaber

SUPERB execution distinguishes any finish and this is notably true of grain work on metal products. Some admirable consummations of this branch of the finisher's art are observable, but too, can be seen examples that, to say the least, are horrible in the extreme. It will not be gain said that in no small measure the character of the graining contributes to the ultimate sale of the product. Some manufacturers at times will go no end to win away some individual particularly endowed with graining abilities and noted for the excellence of his work. There are some who say they can tell the source of a grain product merely by looking at the graining.

Some individuals who grain by hand are experts of their kind. Each piece of grained work is different from the rest, and this lends additional novelty and appeal. Such distinguishing features in graining are bound to excite interest in, and desire for, the metal products representing this work.

As with other kinds of finishing, at the very outset it is meet that a suitable background be laid for the graining. The metal to be grained must be free of all grease and grime and this can be accomplished with benzine or some other cleaning material. There are some well-known chemical cleaning compounds, soluble in water or petroleum products that serve admirably for this work. The metal should be thoroughly sanded to remove all rust spots in order to provide a suitable base for the graining. Dust should be removed with a clean tack rag. It is desirable to apply a good primer or ground coat, which can be sprayed on. The priming coat should be lacquer resistant.

Depending on the nature of the product, the work usually will require filling of some kind. One or two coats of filler can be worked in and then baked and smoothed down by hand or machine. At all times the surface of the work should be kept free of dust. In cases of an inexpensive product, one graining undercoat will suffice; two coats, of course, will always ensure a higher quality product.

Whether graining by hand or mechanical means, there are special materials and instruments available for each type of work. Some individuals will achieve a high quality of workmanship by use of certain materials and methods, while others, equally successful, insist on other preferred materials and systems. A forehanded procedure is to consult with different manufacturers regarding their respective finishing products, following their instructions where their materials are used. Sometimes a representative will only too gladly demonstrate the work, and otherwise as-

sist in bringing about efficient performance.

Various baking processes are governed by the manner of work and products. Each plant has a certain preferred system, and there is no definite "one-and-only" in the matter of baking as in other processes and methods. Many plants rely on metal prime coat bakings of less than an hour, whereas some executives favor two to three hours at 175 deg. F. Some bake at 250 deg. F. in one hour. Where the output allows, of course, the work can also be air-dried, for at least 24 hours.

For graining on metal by hand some plants prefer a combination baked ground and primer. In this case, a baking graining stain and two or three coats of baking varnish or clear lacquer is applied. When varnish is applied as a clear coat, it can be baked at 275 deg. F. for about an hour. The varnish should be hard, flow easily, and be print-proof. Where air-drying methods are used, varnish can also be employed, permitting the work to dry 24 hours between coats, and permitting the work to stand two to three days, then rubbing and polishing.

When using lacquer as clear coat, two hours should be allowed for drying between coats, and overnight drying before rubbing.

Ground coats, when desired, can be low-baked at 175 deg. F. to 200 deg. F. for one hour, or air-dried for 24 hours. The same rule can apply for baking the graining stain. Here, varnish may be low-baked for two hours at approximately 180 deg. F. or air-dried for 24 hours. No matter what method is used, a resin varnish may be employed, drying from 4 to 6 hours, when air-dried, or 200 deg. F. by oven.

To simulate American walnut, when hand graining, prepare a stain consisting of 2 parts of turpentine, 1 part boiled linseed oil and a few drops of Japan dryer. When this is mixed, add Van Dyke brown until you get the desired shade. This stain should be brushed on ever so lightly and evenly, so that the undercoat is still visible. Some grainers use a sponge to apply the graining colors. Have in readiness some turpentine, also a little of drop black and some burnt umber. Using a small over-grainer, dip it lightly into the turpentine and black, with air of palette or similar means, and then work in the desired figures or crotch grain. The rest of the grain work can be done with a 4-inch over-grainer, using a little Van Dyke brown or burnt umber, according to individual bent or choice. The darker veins or lines can be worked in skillfully with the over-grainer dipped in a little drop black. Tone down with a mottler brush and blend out with a badger blender. To produce the effect of pores, use an over-grainer or a stippler brush. Some grainers prefer a check roller for this purpose, mixing the graining color with naphtha, then manipulating the check roller, one with a brush attachment. Care should be taken to get the right pore effect, and not take up too much color at a time on the brush. When the color runs too freely, this object is sometimes nullified. The point is not to get too much color on the check roller.

It should be stated that the graining grounds should be very fine, of good hiding power, and have even flow. They should ensure uniform brightness. In some shops, after the priming coat is baked, the working surface is sanded smoothly before applying a ground coat of the desired color. On especially high-grade work, two coats follow the primer, then the product is ready for graining.

Either water colors or oil colors can be used for graining. Graining stains are available in paste form, and reduced to the proper consistency for the particular work under hand. The stain is workable for a long time, but many grainers prepare enough for immediate needs, especially where a great variety of graining is done.

The baking time for graining stain in many plants is usually the same as allowed for the ground coats. Some shop executives prefer to allow more time, especially on the higher grades of work. Sometimes the work is baked for 3 hours at 250 deg. F. on large, expensive work. Shorter schedules are used, especially where small items are produced and where fast-drying methods are the rule.

Some grainers, by aid of a great assortment of graining tools are capable of executing a great variety of effects, all artistic, and to say the least, no two pieces of work alike. A sensible procedure for the individual desirous of achieving excellence in this field is to visit different shops, where different grain work is turned out. The venture will give the observer a better idea of the real possibilities in this line.

No two workers being alike, each man will have his own pet ideas, suggestions, pointers and methods. It can then be more adequately sensed how different men go about bringing out artistic effects in graining on metal products.

Some grainers go from shop to shop, doing the work on hand, then moving on to the next, wherever a good job offers. Usually, the good artisan has more work of this type than he can properly handle. It seems when a grainer is noted for an unusually high grade of work, he is much in demand.

For EVERY breathing hazard in your Finishing Shop, use

PULMOSAN RESPIRATORS

More than 40 types for

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Pulmosan Respirators offer the most extensive line of dependable respiratory protection on the market. Every model is scientifically designed for its specific purpose and provides lightweight, compact, comfortable protection. Tell us the source of your hazard for proper recommendation. Write for literature.

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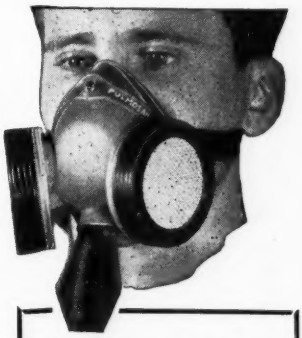
Carboy Tilter	Acid Aprons,	Acid Pails
Carboy Siphon	Gloves, Hoods	and Dippers

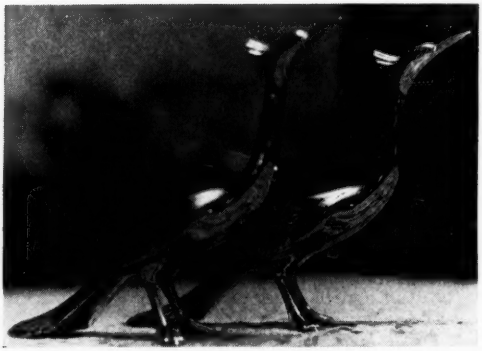
Write for details on any or all items



DC-4100 *Duo Cartridge* **Chemical Respirator**

Unsurpassed for organic and acid fumes and paint spray mists. Two cartridges purify inhaled air. Felt filters prevent clogging. Light, safe, comfortable. Cartridges replaceable. Write for details.

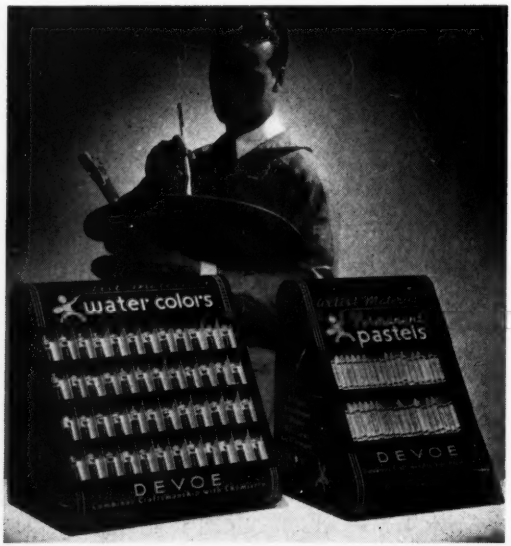
FINISHES *that aid in Appearance & Utility*



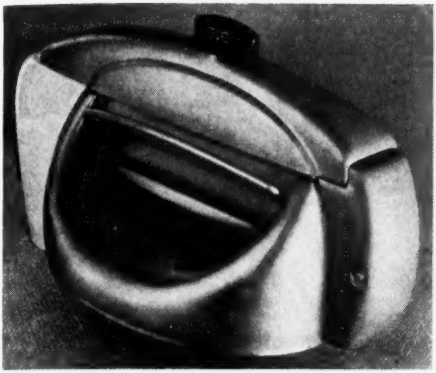
(Right) — These decorative metal geese are cast in white bronze. They have been polished and then coated with clear lacquer to preserve the natural finish of the metal.

(Photo Courtesy Milton Novotny)

(Photo Courtesy Modern Packaging)

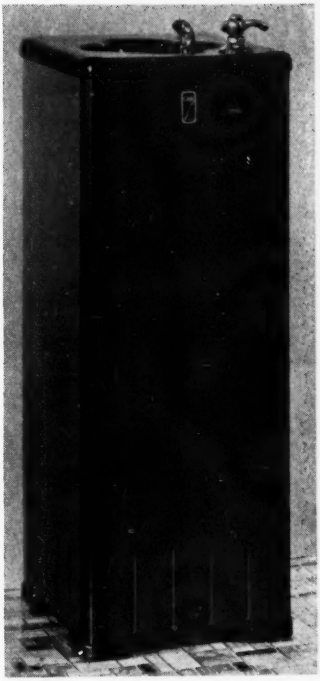


(Left)—This Water-Colors-In-Tubes Display consists of a lithographed metal stand, the front of which is divided into 48 compartments. The color name is lithographed below each compartment for easy color selection and replacement.



(Photo Courtesy Designers for Industry, Inc.)

(Above) — By artistic utilization of streamlining principles to produce balanced proportion, "eye-appeal" is literally a built-in quality of this wringer. Unusual strength and rigidity is afforded by the new channel type steel frame which is housed in Bonderized steel.

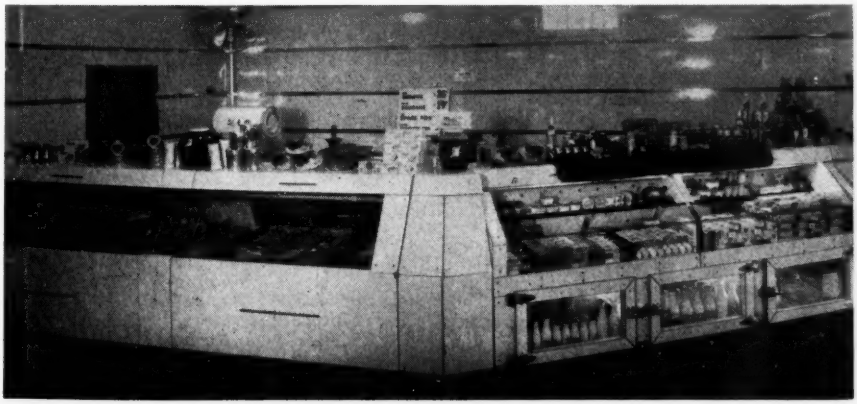


(Right)—A cool water supply is provided by means of the water cooling unit shown here. The cabinet of this unit is finished in a rich bronze lacquer.

(Photo Courtesy Cordley & Hayes)

(Below)—This dairy and delicatessen case is sturdily and attractively designed to insure long and economical service. The inside and outside visible panels are porcelain enameled on Armco enameling iron and the linings are galvanized Armco ingot iron.

(Photo Courtesy The American Rolling Mill Co.)



NEWS of the Industry

Cobb Appointed General Manager of U. S. Rubber Mechanical Goods Division

Willard H. Cobb, for the past several years general factory manager, mechanical goods plants, United States Rubber Co., has been appointed general manager of the Mechanical Goods and General Products divisions. This position includes supervision of the manufacture of Lastex yarn and rubber thread.

In announcing the appointment, F. B. Davis, Jr., president, said that it was in line with a policy of promotion to fill important positions in the company.

Herbert E. Smith, vice-president, will continue supervision of all the activities of the divisions.

A graduate of Stevens Institute of Technology, Mr. Cobb joined United States Rubber Company in 1914. During the ensuing years, he has made steady progress through the organization to his new assignment.

George Muscio Opens Consulting Laboratory

George Muscio, for the past five years head of the research laboratory of The Lea Manufacturing Co., Waterbury, Conn., has resigned to open a consulting laboratory at 480 Watertown Ave., Waterbury, Conn. From this address, Mr. Muscio plans to serve the metalworking and allied trades in a consulting capacity. He will be retained by The Lea Manufacturing Co. as consultant, co-operating with their research laboratory.

International Nickel Opens Sixth Field Service Office

Mr. A. J. Wadhams, vice-president of the International Nickel Co., Inc., and manager of the Development and Research Division, has announced the establishment of a new field office located at 67 Wall St., New York, N. Y.

The new office, which was opened May 1, is under the direction of Mr. J. W. Sands. Its main function will be to promote the use of nickel alloy steels and stimulate interest in products of the Huntington Mill, nickel cast irons and the use of nickel in non-ferrous alloys.

The territory covered by this office includes Metropolitan New York, Long Island, New Jersey; Pennsylvania, east of Williamport, Harrisburg, York; Delaware, Maryland, Virginia, and the District of Columbia.

This is the sixth office opened by the Development and Research Division to give manufacturers in various industrial districts prompt, efficient service in handling their metallurgical problems. Other offices are located in Los Angeles, Calif.; Chicago, Ill.; Detroit, Mich.; Hartford, Conn., and Pittsburgh, Pennsylvania.

A. W. Keller Returns to Maas & Waldstein

Maas & Waldstein Company, makers of industrial finishes, 438 Riverside Ave., Newark, N. J., announces the appointment of A. W. Keller as a technical sales representative.

Mr. Keller was formerly with Maas

& Waldstein, having served as a sales representative for nine years. He has had wide experience in all phases of industrial finishing, and is well known to Eastern manufacturers, especially in the New York and New Jersey metropolitan areas.

National Cash Register Exhibit at New York World's Fair

The exhibit of The National Cash Register Company, Dayton, Ohio, at the New York World's Fair is a building constructed in the form of a giant cash register. The height of this exhibit is equivalent to that of a seven-story building. The cash register itself . . . the largest in the world . . . in form and design, is a prediction of the "Cash Register of Tomorrow."

The cash register revolves continuously. At the top, 74 ft. in the air, the daily attendance figures for the entire Fair are displayed. These figures are changed every half-hour, and can be seen from any part of the surrounding area.

Around the base of the building are interior and exterior displays. These displays dramatize the modern research, engineering, and manufacturing facilities which have played such an important part in the world-wide use of, and need for National Cash Register products.

Among the most impressive displays are six realistic, life-size scenes depicting the use of Nationals in far-off corners of the world. Recreating the atmosphere and surroundings of the shops of the Far North, the Road to Mandalay, the ancient Nile and other picturesque places, these displays show, in graphic form, that wherever money is handled or records kept, there is a need for National Cash Register products.

Another impressive display shows all the 7,857 parts which go into the manufacture of a modern National. Another display exhibits a representative line of National accounting-bookkeeping machines for mechanized record-keeping. Still others show cash registers for retail stores and describe the mechanical service organization available to National users the world over.

These displays were designed not only to interest the business man but also to convey to the millions of shoppers the advantages and safeguards which are theirs when buying in stores using National equipment.

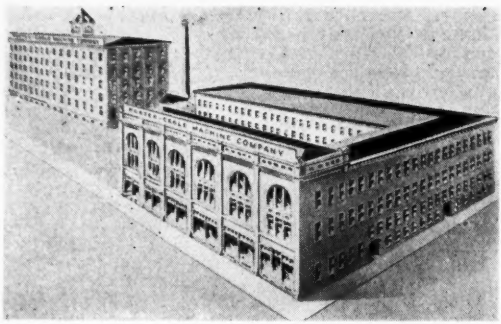
The building is located at the head of the Amusement Zone. It was designed by Walter Teague, one of the leading industrial designers of the country.

A view of The National Cash Register Exhibit as it appears at the New York World's Fair.

Frank B. Conlon Joins Sheffler-Gross Company

According to a recent announcement, Mr. Frank B. Conlon has joined the Sheffler-Gross Company, Inc., Drexel Bldg., Philadelphia, Pa., in the capacity of sales engineer. Mr. Conlon was formerly with the engineering department of the Pennsylvania Railroad Company and later with the Airtemp Corporation of Dayton, Ohio.

In his new position, Mr. Conlon will specialize in sales and engineering with particular reference to air conditioning, heating, and ventilating work.



The building in the foreground illustrates the additional space acquired by Porter-Cable Machine Company.

●

DeVilbiss Moves New York Sales and Service Branch

The new address of the industrial division of The DeVilbiss Company, 300 Phillips Ave., Toledo, Ohio, is 111 Eighth Avenue in the Port Authority Commerce Building, New York City.

Improved transportation, trucking and parking facilities are available in this new location. Its greater accessibility will, company officials believe, make the service facilities offered by this branch more convenient to the trade.

Plans for Fourth Annual Forum

The Fourth Annual Forum of the Porcelain Enamel Institute, 612 N. Michigan Ave., Chicago, Ill., will be held at Ohio State University, Columbus, on October 18, 19, and 20, according to an announcement by Frank E. Hodek, Jr., General Porcelain Enameling & Mfg. Co., Chairman of the Forum Committee.

Details of the program will be announced later. However, the subjects under consideration by the Forum Committee assure a varied and thorough coverage of current problems that will interest shop men in the porcelain enameling industry and related industries. Papers presented by authorities in various fields will be followed by discussion in the manner that has made previous Forum sessions so valuable in standardizing and improving enameling shop practice.

Porter-Cable Machine Company Expands Manufacturing Floor Space

Through the purchase of adjoining lands and buildings, Porter-Cable Machine Co., Syracuse, N. Y., has added 90,000 sq. ft. to its present manufacturing facilities. This acquisition gives Porter-Cable Machine Company complete use of a full railroad siding and frontage on four sides, plus additional inside and outside storage facilities. Part of the new buildings will be used for display purposes.

Expansion into the new buildings will take place at once, since present sales have outgrown capacity of the former property. The Porter-Cable Machine Company manufactures a large line of portable sanding, cutting, and grinding equipment.

Maas & Waldstein Co. Moves Chicago Office

Maas & Waldstein Co., 438 Riverside Ave., Newark, N. J., recently announced the removal of the Chicago office and warehouse to 1658 Carroll Ave., Chicago, Illinois.

The new plant will have additional space and facilities to provide for the increased business in the mid-western territory serviced by the Chicago division.

Flexlock Pipe Joints at the World's Fair

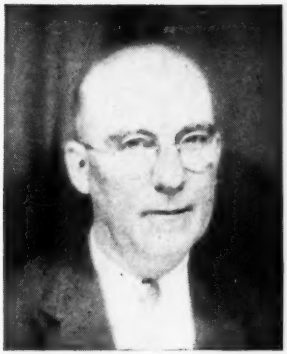
The U. S. Stoneware Co., Akron, Ohio, will have a very comprehensive exhibit of "Flexlock" pipe joints and "Flexlock" split sleeves at the New York World's Fair. The display will be located in The B. F. Goodrich Company's building.

The exhibit will include a full assembly of U. S. Stoneware acid-proof piping and acid-proof valves, coupled in place. The educational background of the display will stress the ease with which "Flexlock" pipe joints are installed, their flexibility in withstanding strains and stresses, their ability to stand up under extreme pressures and their corrosion-resisting value for chemical plant and laboratory building service.

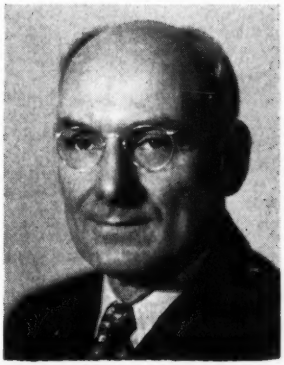
Engineers will be on hand to offer explanatory comments and detailed information.

Newly Elected Officers of American Electro-Platers' Society

FREDERICK FULFORTH,
First Vice-President,
Proctor & Schwartz Company,
Philadelphia, Pennsylvania

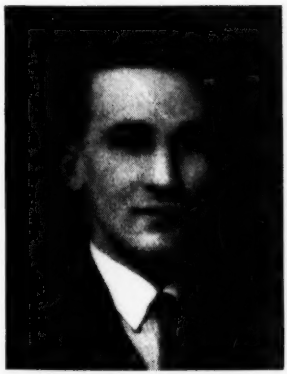


JOSEPH L. DOWNS,
Second Vice-President,
Remington-Rand,
Middletown, Connecticut

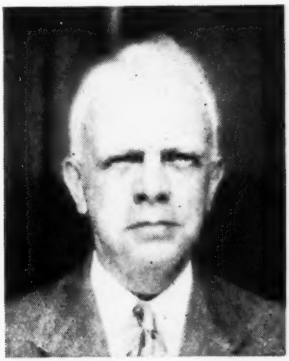


R. M. GOODSELL,
President,
Racine Plating Company,
Racine, Wisconsin

NELSON SIEVERING
Third Vice-President,
Philip Sievering, Inc.,
New York City, New York



W. J. R. KENNEDY,
Executive Secretary,
Springfield, Massachusetts



NEW Plant equipment and MATERIALS

M & W Baking Platelustre

A new baking enamel which is said to produce the colors of many metals, to be known as "Baking Platelustre," has been developed by Maas & Waldstein Company, 438 Riverside Ave., Newark, New Jersey.

According to the manufacturer, Baking Platelustre can be applied to any polished metal for obtaining a color resembling brass, chemically treated aluminum and steel, and other colored metals. This finish is durable when baked, and will resist the action of cleaning operations and also nickel, chromium, and other plating baths. Flat stock finished with Baking Platelustre can be formed after baking. Two-color finishes can be obtained by "relieving" operations.

Baking Platelustre can be applied to any type of polished metal by spraying or roller coating. It is especially suitable for compacts, novelties, lighting fixtures, and other products where a brilliantly colored metallic finish is desired.

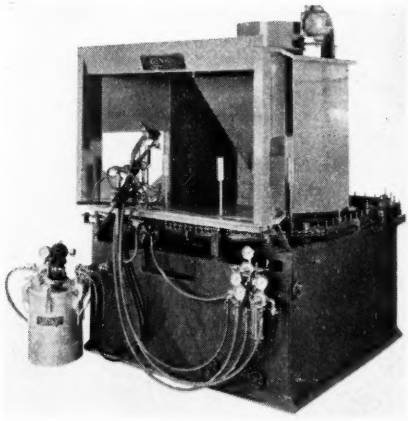
Hommel Chromium Plate Finish Paint

The latest addition to The O. Hommel Co. line of aluminum, gold and copper bronze powders is an ultrafine powder which will, when used with the proper liquid, produce a finish closely resembling chromium plating. This powder is said to have an extreme covering capacity and is most economical in use. Samples can be obtained by writing to The O. Hommel Co., 209 Fourth Ave., Pittsburgh, Pennsylvania.

Binks Automatic Spindle Finishing Machine

A new Standard Spindle Type Automatic Spraying Machine has been recently placed on the market by Binks Manufacturing Company, 3114-40 Carroll Ave., Chicago, Ill. This new machine is designed so that it can be readily adapted to automatic spray finishing of items such as clocks, battery boxes, lamp fixtures, and many other similar items.

The new Standard Spindle Type Automatic Spraying Machine utilizes the newly perfected Binks Thor Model No. 21 Automatic Spray Gun connected



Binks Automatic Spindle Finishing Machine

with a 3-way valve that controls the flow of material from the gun. By this means, the gun sprays only when it is following the revolving workpieces being finished.

The Binks new Standard Spindle Type Automatic Spraying Machine is available with either a dry or water wash type spray booth.

Kidde-LUX Fire Extinguisher

A new one-hand fire extinguisher, to be known as the "Kidde-LUX," has been placed on the market by Walter Kidde & Company, Inc., 731 West St.,

Kidde-LUX Fire Extinguisher

Bloomfield, N. J. This new unit weighs two pounds and employs carbon dioxide as the extinguishing medium.

The Kidde-LUX Extinguisher features a pistol grip handle and a trigger control valve. The discharge horn is self-locking in any one of several positions according to the location of the fire.

Finger-tip control and balanced one-hand operation are said to provide highly efficient discharge of carbon dioxide directly onto the fire and without waste.

New Development for Wrinkle Finishes

New Wrinkle, Inc., Dayton, Ohio, licensors of wrinkle finishes, has recently been granted a United States patent covering the manufacture of a resin to further augment the advantages of wrinkle finishes. The patent number is 2,154,954.

The manufacture of the resin and the wrinkling varnish from which it is made is said to be somewhat unique. The resin belongs in the class of a phenol-modified, oil-extended alkyd, but is a revolutionary departure from the usual method used in the manufacture of such a gum. The usual procedure would be to first make the alkyd and then modify it through the addition of the phenolic material and the additional oil. The procedure disclosed in this patent is different in that a phenolic varnish base is made first, which is afterward converted into an alkyd by the addition of phthalic anhydride.

The resin may then be dissolved in suitable solvents to make the wrinkling varnish or it may be blown with air and afterwards dissolved to make a varnish with a more accentuated wrinkling texture. The unblown resin solution is preferably used as a grinding vehicle for pigmented finishes, the color paste afterwards being thinned with the blown resin solution.

The method involved offers particular advantages in allowing an appreciable length of time to elapse between the spraying and baking operations. Also, with a proper selection of the

KING PLATING BARRELS

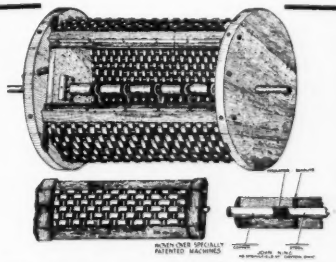
Cleaner - Faster - Smoother Plating

THIS DESIGN FOR NICKEL

A wood woven cylinder adaptable to any barrel plating tank. The woven construction allows maximum agitation and produces a clean, smooth plate. Barrel should not rotate more than 2 r.p.m. Speed means wear, not plate. Made in all sizes. Prices are exceptionally low.

Write for illustrated folder.

JOHN KING 48 SPRINGFIELD ST. DAYTON, OHIO



"Use them once—you'll use them always"

phenol gum used, the time of baking can be shortened materially and still give an extremely hard, tough wrinkle finish.

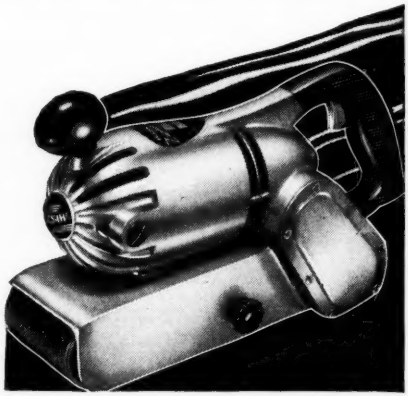
Skilsaw "Zephyrplane" Sander

The illustration shows the Skilsaw "Zephyrplane," a streamlined 3-in. belt sander which has been announced by Skilsaw, Inc., 4743 Winnemac Ave., Chicago, Ill. The tool incorporates many new features which, it is claimed, make it outstanding in performance and ease of operation. It has been developed particularly for those users whose work does not justify the purchase of the usual larger and more expensive sanders.

The streamlined design of the Skilsaw Zephyrplane represents more than merely modern styling—it results in a perfectly balanced tool that provides uniform pressure over the entire sanding surface. A novel feature is the interchangeable knob handle that can be moved from the top of the nose of the sander for greater convenience in sanding vertical surfaces. Another outstanding feature is the patented "touch-control" lever which instantly releases the tension on the sanding belt, so that changing belts becomes a very simple and quick operation.

An important safety feature is the pressure control trigger switch which makes accidental starting impossible. This switch is mounted in a bakelite handle that not only is a non-conductor of electricity, but is also cool and comfortable to hold while sanding. The mounting of the motor permits straight-line ventilation that results in greater cooling efficiency. Smooth running is assured by ball bearings on the armature and transverse shaft. Oilite bearings are used on the idler and driver pulley. A belt speed of 1,200 surface ft. per minute permits fast sanding and is said to produce a smooth, even surface without ripples or ridges.

The compact construction of the Skilsaw Zephyrplane is due to its die-cast aluminum frame. The tool weighs only 13¼ pounds.



Skilsaw "Zephyrplane" Sander

Willson No. 752L Respirator

The illustration shows the Willson No. 752L Respirator which was recently placed on the market by Willson Products, Inc., 271 Thorn St., Reading, Pa. This respirator is a low resistance, twin filter unit for protection against Type A and lead dusts.

This respirator employs a small rubber, form-fitting face piece designed to permit the wearing of goggles or spectacles without visual interference. Two Rotiform Filters, each with 30 sq.

Users of D'Oilene "B" often tell us, "We had no idea we could use any other solvent in our degreaser which would be as satisfactory and save us money."

—D'Oilers—
Are built to solve your degreasing problem.
—D'Oilene "B"—
to reduce your degreasing cost.
It sells for less—Ask us.
MECHANICAL PROCESS CORP.
SOUTH ORANGE NEW JERSEY
Specialists in the use and handling of chlorinated solvents . . .

Willson No. 752L Respirator

in. filtering space, aid in minimizing breathing resistance.

Enthone Retarder for Lacquer Blushing

A retarder which is said to prevent "blushing" or "blooming" of nitrocellulose lacquers during drying operations on damp or humid days has been placed on the market by The Enthone Co., 442 Elm St., New Haven, Conn. It is stated by the manufacturer that this retarder will overcome blushing troubles during days of high humidity for all types of nitrocellulose lacquers applied by spraying, brushing, or dipping. The retarder is said to have wide resin tolerance and high nitrocellulose solvency, thus making it compatible with almost all lacquers.

Plant and laboratory trials, it is claimed, have shown that the retarder does not unduly slow up the drying time. Tests of lacquers dried during periods of high humidity have demonstrated that high strength and adhesion of the lacquer were obtained when the retarder was used.

Corrosol No. 2

A rustproofing material in liquid form for application to a clean or rusted metal surface prior to painting, to be known as "Corrosol No. 2," has been placed on the market by International Rustproof Corp., 12511 Plover Ave., Cleveland, Ohio. This material can be applied by dipping or by a rubber sponge and wad of steel wool.

Corrosol No. 2 is an ortho-phosphoric acid and alcohol solution with reduced chromates employing manganese dioxide and iron filing as reducing agents. Application to a rusted metal surface results in attack on the rust to break down its formation and release moisture of crystallization to be absorbed by the alcohol and expelled by evaporation.

Corrosol No. 2 converts the iron oxide into an iron phosphate and leaves a deposit of ferrous chromates on the surface. The surface does not have to be washed or rubbed prior to painting.

Spraying Systems Flat Atomizing Nozzles

The illustration herewith shows a "flat atomizing" spray nozzle which was recently placed on the market by Spraying Systems Co., 4922 W. Grand Ave., Chicago, Ill. The spray obtainable with this nozzle is the flat type with uniform distribution and is available with a number of spray angles.

The nozzles are available in ¼ in. and ⅜ in. male or female pipe connections. The capacity range is from 0.2 to 5.0 g.p.m. at 40 lbs. pressure.

"MAGIC" TACK RAGS IMPROVE YOUR FINISH 100%

MAGIC TACK RAGS remove specks, lint and sand particles--- bring out that deep, smooth luster, produce a faultless surface for white or colored finish. Why use "home made" tack rags when you can buy MAGIC TACK RAGS at trifling cost! They are tackier, do not dry--- are dust-proof and spontaneous combustion proof. Packed in dozen and gross lots or more. Made only by the

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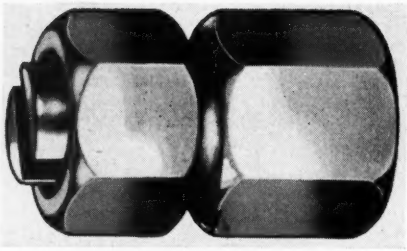
If your dealer does not carry Magic Tack Rags, write us for sample.



Spraying Systems Flat Atomizing Nozzles

A strainer is obtainable in the smaller capacities. The standard stock construction is brass with Monel metal strainers and other metals can be specified. The flat atomizing spray nozzle is recommended for air conditioning, industrial washing, and chemical processes or wherever a flat, wide spray with uniform distribution is required.

Franzite Synthetic Enamel

An air drying 100 per cent synthetic enamel, to be known as "Franzite," has been placed on the market by Hilo Varnish Corporation, 42-60 Stewart Ave., Brooklyn, N. Y. This finish was specially formulated to give good hiding and high gloss in one coat, and to dry hard in 10 to 12 hours.

Franzite is said to set in 20 minutes and dries to the touch in 45 minutes. This material may be force dried by a 20-minute bake at 150 deg. F.

Franzite is available in all colors including black, white, and a clear.

Selfvulc M-A Single Coat Primer

A single coat liquid rubber primer coating material which has been developed to dry cold to a solid surface within an hour and withstand temperatures to 212 deg. F., to be known as "Selfvulc M-A Single Coat Primer," is now being marketed by Self-Vulcanizing Rubber Company, 605 W. Washington Blvd., Chicago, Ill. Selfvulc M-A Single Coat Primer is used for bonding Airvulc Liquid Rubber to metal. When Selfvulc M-A Single Coat Primer is used alone, it is said to rustproof and waterproof metal surfaces.

Selfvulc M-A Single Coat Primer used as a first coat upon which the liquid rubber coating is applied can be used for rubber lining acid and pickling vats, tanks, tubs, fans, blowers, air ducts, plating racks, filter press plates, and so on. The primer covers 250 sq. ft. of surface per gallon.

Indicating Thermometer with Signal

Consolidated Ashcroft Hancock Co., 11 Elias St., Bridgeport, Conn., has announced the addition to its line of American indicating thermometers of a mechanical bellows unit which closes an electrical circuit to an alarm gong or signal light to notify the user that a set temperature point has been reached. The new assembly is designed for use in connection with processes where close temperature control is necessary.

The bellows element acts to control a 110-volt electric circuit, thus no relays are required. The thermometer is provided with a length of extension cord and plug for connection into a 110-volt power source. After the circuit has been closed to start the alarm, it can be opened by pulling the plug out of

RUST-I-CIDE "50"
Cleans, etches, and prepares metal for a perfect finishing job.
It can help your product.
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Oriental Rouge is the ideal rouge for obtaining a mirror-like finish on stainless steel, silver, gold and all other metals. Write for details.
Oriental Rouge Co., Inc.
Established 1901
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Consolidated Ashcroft Hancock Indicating Thermometer with signal.

the circuit. The new assembly fits into a standard thermometer connection and so can be used to replace American thermometers previously purchased without the alarm provision.

Duriron Stainless Steel Pump

A stainless steel pump which is designated as Model 2K has been announced by The Duriron Company, Dayton, Ohio. This pump is designed specifically for handling corrosive liquids.

The Duriron Model 2K Pump is made in several different corrosion-resisting alloy steels: Durimet, a nickel-chromium-molybdenum low carbon alloy steel for handling weak sulfuric and other acids, chlorine bleach solutions and caustics; Durco KA2S (18 per cent chrome, 8 per cent nickel low carbon steel) for nitric and fruit acids; Durco KA2SMo (18 per cent chrome, 8 per cent nickel, 3 per cent molybdenum low carbon steel) for pulp cooking liquors and phosphoric acid, and in other corrosion-resisting ferrous and non-ferrous alloys of special analyses.

All parts in contact with the corrosives handled are made of corrosion-resisting alloys. Both suction and discharge are of 6 in. integral flanged openings. Closed impellers up to 13½ in. diameter, and open impellers up to 14 in. diameter are available. The pump is fully equipped with ball bearings protected by dust and oil seals. Capacities range up to 1,700 GPM for heads up to 140 feet.

Mattison No. 455 Wide Belt Sheet Grinding and Polishing Machine

A wide belt sheet grinding and polishing machine to be known as the "No. 455" especially designed for the proper application of factory-coated abrasive belts to the grinding and polishing of stainless steel and other alloy sheets has been placed on the market by Mattison Machine Works, Rockford, Ill. This unit is said to be built with presion and care and to have the necessary weight to assure the stability required for smooth surfacing.

Scientific factory preparation produces belts that cut evenly and uniformly throughout their entire surface and provide a finish with even texture and maximum economy. In addition to producing a fine and uniform finish, the Mattison No. 455 Wide Belt Sheet

NOW--

DEOXIDINE prepares metal surfaces perfectly for painting.

ELECTRO, SPRAY and **THERMOIL GRANODINES** protect against rust and preserve paint.

LITHOFORM keeps paint intact and lustrous on zinc and cadmium surfaces.

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AMERICAN CHEMICAL PAINT CO.

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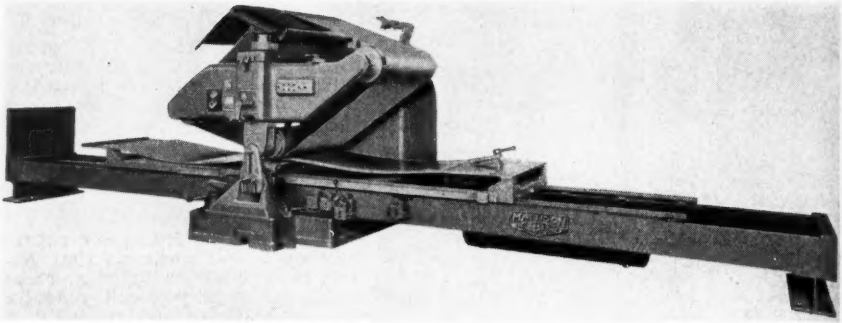

Mattison No. 455 Wide Belt Sheet Grinding and Polishing Machine

Grinding and Polishing Machine has been designed with the particular object of obtaining the highest efficiency and the longest life from factory-coated abrasives.

The construction of the machine adapts itself for quick application of belts. The abrasive belt is automatically controlled and oscillated on the rolls.

Push button stations and controls for the tables of the machines are located at the front for easy access by the operator. The contact rolls are removable and rolls of any degree of cushion may be substituted according to the nature of the work.

The Mattison No. 455 Wide Belt Sheet Grinding and Polishing Machine is available in various widths and lengths. The units are built to carry belts up to 40 in. or 50 in. width to finish sheets up to 36 in. or 48 in. wide and 10 ft., 12 ft., and 14 ft. long.

Ledlex

A lead-base paint recently announced by Claronex Products, Inc., 235 India St., Brooklyn, N. Y., is being marketed under the trade name of "Ledlex." This material, according to the manufacturer, can be applied on metal to provide resistance against action by acids, chemicals, brine, moisture, and weather in temperatures from minus 20 to plus 120 deg. F. The color of Ledlex paint is that of metallic lead. Coverage is said to be from 250 to 500 sq. ft. per gallon, depending upon the type of surface to which it is applied.

Ledlex is packaged in one and five gallon double compartment containers, one side for the paste and the other side for the vehicle. Quantities of 55 gallons or more are supplied in separate containers.

Shelburne Spray Gun

A paint spray gun equipped with a nozzle for pressure, gravity, and suction feed has been placed on the market by

METALPREP
"Used First — Makes Your Paint Finish Last"

- Removes Rust
- Etches Metal
- Makes Paint Adhere

The complete metal cleaner for all sheet metal surfaces. Gives a tooth to the metal, insuring a permanent bond.

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6564 BENSON ST. DETROIT, MICH.

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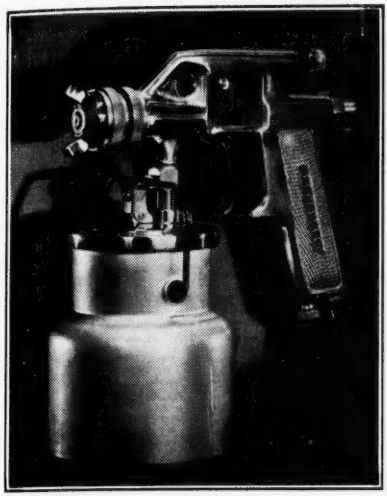
Strictly first quality aluminum oxide abrasive grain manufactured in our own electric furnace plant. Specially prepared and treated for most efficient polishing performance. Write for samples.
ABRASIVE COMPANY GRINDING WHEEL AND ABRASIVE DIVISION OF SIMONDS SAW AND STEEL CO. **PHILADELPHIA, PA.**



Shel-Matic No. 45

A. Shelburne Co., 739 Series Ave., Los Angeles, Calif. This spray gun is designated as the "Shel-Matic No. 45" paint spray gun.

The Shel-Matic No. 45 paint spray gun is designed to handle any type of finishing material and is available with a choice of nine nozzle assemblies for use in connection with suction, pressure, or gravity materials feed. Construction includes a trigger by which air is first circulated through the gun before the material is admitted. Straight line valve action to minimize wear is provided. A removable stainless steel needle valve and frictionless assembly of the spray nozzle to prevent wear when position of the fan spray is being altered are among the features of this gun. There is a removable nozzle assembly to assist in cleaning this part of the unit. The housing is forged Duralumin to provide strength with light weight.

Separate adjustments for air and material are located at the bottom of the handle and the rear of the gun housing. Gasketed connections between the gun and materials in which a solvent proof compound is employed prevents leakage at this point, according to the manufacturer. The material cup is made of 18 gage spun aluminum. The complete assembly weighs 2 lbs. 5 oz. with a quart cup and cover.

20th Century Brite Finish

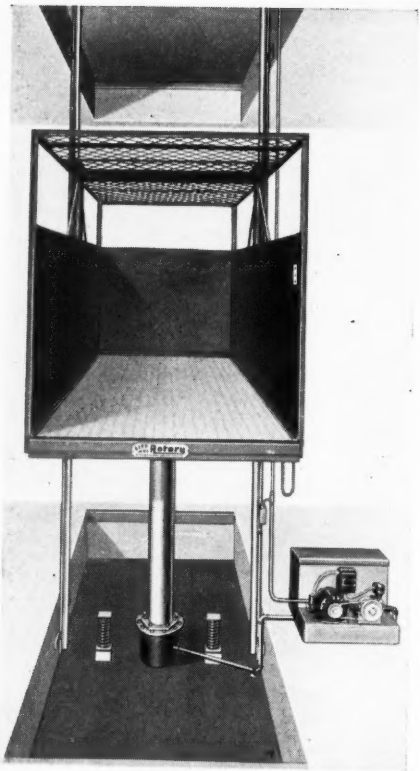
A colorless liquid coating material which is said to afford protection to metal surfaces has been placed on the market by Theo. B. Robertson Products, 700 W. Division St., Chicago, Ill. Metal surfaces can be covered with 20th Century Brite Finish in order to waterproof them and protect them from attack by alkalies and alcohol.

The application of this protective finish can be made with a lint-free cloth. Air drying is said to be complete in two to three hours, after which time a glossy, hard and permanent finish is the result. The coating sets in 20 minutes.

The application of 20th Century Brite Finish can be made on metal furniture, window sills, radiator covers, counters, and so on. Packaging is in 1 to 55-gallon containers.

Rotary Electric Oildraulic

Especially designed for moving materials vertically to a distance of 30 ft. or less, Rotary Lift Company, Memphis, Tenn., has developed the Electric "Oildraulic" Elevator illustrated here-



Rotary Electric Oildraulic

with. The features of this elevator are said to be economy in installation, operation, and maintenance, combined with the ultimate in safety and maximum utilization of space.

The Electric Oildraulic operates by pressure of oil electrically pumped into the jack, raising the plunger for lifting from one level to another. The motor and pump operate only during ascent, descent being made by gravity. The load is pushed up instead of being pulled up, consequently the necessity of a penthouse or overhead structure and reinforcing side walls with heavy, load bearing columns to carry the weight of the car, its load, cables, and overhead machinery, is eliminated. The Electric Oildraulic is intended for light or heavy service with a capacity range of from 500 to 50,000 lbs., made possible by 11 different jack sizes varying in diameter from 3½ to 17¾ in. Although most Rotary elevators are of the low speed type, because of the short haul, speeds up to 100 ft. per minute can be supplied.

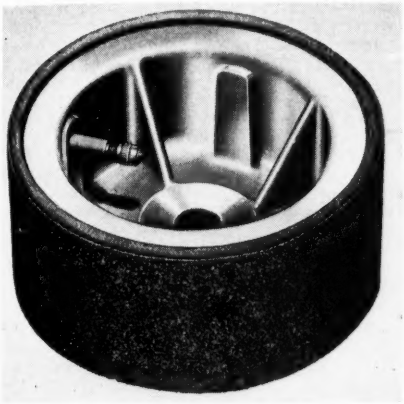
The power unit is designed to provide a wide margin of service requirements. The motor can be supplied to meet customer's specifications. Pumps are made in several types to suit varying conditions. The pumps are absolutely quiet when operating and are said to be extremely efficient. The Rotary Perfected Electric-Oil Lowering Valve is designed to assure a velvety smooth drop away from landings, and smooth, accurate stops. Controller can be of the push button or hand rope type as specified. The oil reservoir is compactly formed and covered. Machines can be supplied completely encased for exterior installations.

The hold-down push button control is the most popular type and most practical from all standpoints. Constant pressure of a push button at landings or in the car operates the elevator, which travels in the chosen direction until the button is released. With full automatic control, the momentary pressure of a button sends the car to the chosen landing, where it automatically stops. The car cannot be stopped while in motion. The rope control is practical and easily installed, and provides extremely smooth operation. Rotary cars are built to conform with state and association requirements, with maple, non-skid steel or plain sheet steel flooring. Gates or doors to be electrically or mechanically interlocked to conform to state and municipal codes can be supplied.

THE BUCKINGHAM PRODUCTS CO. 8900 HUBBELL AVE. DETROIT, MICH.
MANUFACTURERS OF A COMPLETE LINE OF
Buffing and Polishing Compositions

Mall Pneumatic Tube Cushioned Sanding Wheel

A pneumatic sanding wheel in which a pneumatic tube cushions a replaceable abrasive band has been placed on



Mall Pneumatic Tube Cushioned Sanding Wheel

the market by Mall Tool Company, 7740 S. Chicago Ave., Chicago, Ill. The wheel measures 6 in. in diameter and has a 3-in. face. The metal portion of the wheel is made of aluminum and has an opening in its rim through which a tire valve to the pneumatic tube projects inward. According to the manufacturer, inflation of the tube can be made by means of a hand pump which is included as standard equipment. The tube cushions the abrasive band and assists in application on the work surface.

American Optical Face Shields

Three face shields for light duty protection have just been placed on the market by American Optical Company, Southbridge, Mass. These face shields are suitable for light duty work on operations such as sanding, buffing, and light grinding.

Compactness and light weight are said to make these shields comfortable to wear under practically all conditions. The shields may be thrown up when not in use, and the friction joint holds it firmly in place in either the "on guard" or "off" position.

The windows are made of durable, transparent material, measuring 4 in. x 9 in. to assure all around clear vision. An aluminum binding strip gives them rigidity to prevent warping and permits shaping them to accommodate large features. The shields may be worn with or without prescription glasses and are supplied in clear, amber, or green windows. Two of the models are equipped with genuine leather sweatbands. The headbands are instantly adjustable for an accurate, comfortable fit on any face.

Paasche Combination Automatic Adhesive and Flocking Unit

Paasche Airbrush Co., 1910 Diversey Parkway, Chicago, Ill., recently announced the marketing of an automatic air coating and air painting unit. The complete unit consists of a conveyor 16 ft. 9 in. long x 4 ft. wide x 3 ft. 6 in. high with roller chain on ball bearing steel sprockets, and 28 spindle assemblies.

Metal discs which are furnished with this style of equipment are loaded manually, and as they pass through the first coating station, they receive a uniform application of adhesive. The metal

R-700

An unusual Rust Inhibitive.

Dries with lacquer speed.

Very flexible baking schedule.

Resists salt spray remarkably.

Very light in color.

Ideal vehicle for bronze powders and pastes.

Suggested wherever RUST is a production problem.

Remarkably adherent as primer under baked finishes.

Variations for special requirements available.

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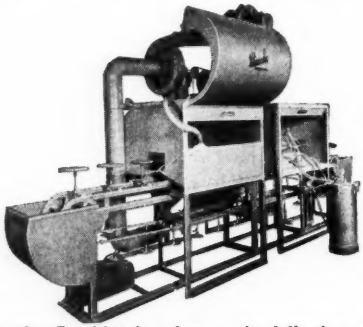
discs next enter a flocking station where they are again rotated. The flock is applied by means of a continuous flow nozzle.

The flock is placed in the hamper located at the rear. This hamper is



Paasche Combination Automatic Adhesive and Flocking Unit

equipped with a variable speed motor driven screw that feeds only as much flock as is required through the flock distributing unit. All excess flock or spray is picked up, recirculated and used over and over again, thus waste of material is reduced to a minimum.

The amount of flock to be applied to the workpieces is accurately controlled and a uniform application is assured. The conveyor is equipped with an explosion-proof electric motor drive with a speed reducer and a vari-speed pulley to provide for speeds that permit coatings of from five to 25 pieces per minute.

The overall height of the unit is 7 ft. 6 inches. The maximum diameter of the workpieces is 10 in. and the daily production of workpieces of this size is 11,000 pieces. The unit includes two automatic airbrushes, a 12-gallon "clamptight cover" pressure feed material tank, an air conditioning unit, a special flocking and reclaiming booth with material hopper and agitator and a ventilating unit.

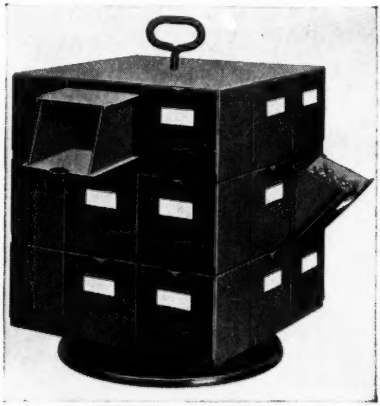
Blossom Instrument Covers

Transparent oiled silk for use as a wrapping material in covering scales, meters, dials, and so on, has been placed on the market by Blossom Manufacturing Co., 81 Madison Ave., New York, N. Y. The material is oiled silk, sufficiently transparent so that it is not necessary to remove the cover from the instrument face in order to make a reading. The silk fabric is said to be dust proof, moisture proof, and acid resisting.

Noggle Spin-A-Bin

A revolving assembly of welded steel bins, to be known as the "Spin-A-Bin," has been placed on the market by Noggle Products Co., Ann Arbor, Mich. The Spin-A-Bin is available in a unit containing 24 bins each 3 x 3 x 2½ in., or 24 bins each 4 x 4 x 3 inches.

In either model, a double width bin can be substituted for any pair of sin-



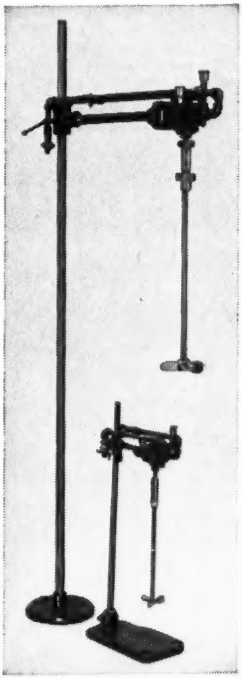
Noggle Spin-A-Bin

gle width bins. The bins are constructed of 26-gauge steel and are spot welded. The Spin-A-Bin is finished in green enamel.

Increase Production
Varied shapes and sizes more uniformly Finished
SEND SAMPLE TIME STUDY GLADLY GIVEN.
Packer-Matic Automatic
Polishing & Buffing Machines
Cut Hour Costs
Automatically — todays Method of Finishing
THE PACKER MACHINE CO. MERIDEN, CONN.

Eclipse Air Motored Mixers

Eclipse Air Brush Company, Inc., 390 Park Ave., Newark, N. J., has recently placed on the market a new mounting for the Pneumix air motored agitators of the direct drive types. Variable speeds from 30 to 6,000 r.p.m. are obtainable. Quiet operation and elimination of fire and explosion hazards are said to be assured.



Eclipse Air Motored Mixers

A laterally swinging cross arm, holding the air motor with a direct drive shaft and propeller, is adjustable up and down a vertical bar and thus can be fixed at any height. The ease of lowering the agitating unit, which weighs 15 lbs., into a tank and raising it when the operation is completed is one of the outstanding features of the new mounting.

The illustration herewith shows two extremes in the new series of mountings. The smaller unit is designated as "AL" and is recommended for laboratory work; the larger unit which is 5 ft. in height and designated as "BL" is a stationary unit and recommended for production work. The shafts and propellers in all of the units are standard in chromium plated or stainless steel. Other metals are available to meet specific requirements.

Valdura No-Rust Primer

A paint product known as "Valdura No-Rust Primer" for application directly over rust has been placed on the market by American Asphalt Paint Company, 43 E. Ohio St., Chicago, Ill. This material is a clear, light liquid which is said to penetrate into the surface and surround each rust particle and thus prevent further oxidation.

Valdura No-Rust Primer is made from Valdura Processed Tung Oil and other special sealing oils that are said to give it the ability to choke rust and thus prevent its spreading or bleeding through a top coat of paint. A good grade of paint can be satisfactorily applied over Valdura No-Rust Primer although Val-

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For a real good polishing job use
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TURKISH — NAXOS — AMERICAN
KEYSTONE EMERY MILLS *Write for Sample* 4316 Paul St., Phila., Pa.

dura Asphalt Aluminum Paint or Valdura Improved Asphalt Paint are recommended for the finish coat.

The surfaces on which Valdura No-Rust Primer are recommended include rusted tin, galvanized iron and rust-pitted iron castings and steel plate.

ATC Vernier-Set Timers

A Vernier-Set Timer which is said to be especially well adapted to automatic machinery, to the purging of gas-fired ovens and also to the timing of furnace operations has been placed on the market by Automatic Temperature Control Co. Inc., 34 E. Logan St., Philadelphia, Pa. The Vernier-Set Timer is said to combine quick, accurate setting with rugged construction.

By employing the Vernier principle, the time cycle can be set accurately to within a split scale division, thus the Vernier-Set Timers designated as the Series 2800 provide accurate and visible timing adjustment.

The Vernier-Set Timer illustrated herewith has been designated as Type 2803 of the Series 2800. With this type of timer, four arrangements of load circuits are possible. The load circuit changes can be readily made without

ATC Vernier-Set Timer Series 2800, Type 2803

tools and without dismounting any of the timing mechanism.

Special features, such as independent wire loads, high voltage operation, and contact modifications, are available within the Series 2800. All of these units are equipped with Telechron motors.

Cooper D. C. Stripper

A stripper, to be known as the "D. C. Stripper" for cleaning steel and iron parts in a solution tank before plating has been placed on the market by D. C. Cooper Co., 20 East 18th St., Chicago, Ill. The D. C. Stripper is said to clean like magic, rinse easily, and to emit no offensive fumes or odors.

Airtherm Ventilating Fan

A line of ventilating fans available in sizes from 12 to 30 inches for exhaust service has been placed on the market by Airtherm Mfg. Co., 1474 S. Van Deventer St., St. Louis, Mo. Formed tubes are welded to a mounting ring on the Airtherm type of fan which provide support for a resilient motor mounting.

Check In AT DE WITT OPERATED HOTELS
In Cleveland
HOTEL HOLLENDEN
In Columbus
THE NEIL HOUSE
In Akron
THE MAYFLOWER
In Jamestown, N. Y.
THE SAMUELS
and
THE JAMESTOWN
In Corning, N. Y.
BARON STEUBEN
HOTEL
DeWITT OPERATED HOTELS
Theo. DeWitt, Pres. R. F. Marsh, Vice Pres.

The Airtherm line includes six sizes with 12 to 30 inch fan in which the overall diameter of the mounting ring ranges from 14¾ to 34¾ inches. The overall distance from the face of the mounting ring to the back of the motor is 6¼ inches in the smallest size and 22½ inches in the largest size.

A.C. or D.C. motors can be specified. One of the three 12 inch units in the Airtherm line is available for A.C. operation only.

With a constant speed motor, ratings are 775 to 6,200 c.f.m. The two-speed motor drive adds a second series of speeds somewhat below the maximum.

Valdura Asphalt Aluminum Paint

Following extensive tests covering a period of three years, the paint engineers of the American Asphalt Paint Company, 43 E. Ohio St., Chicago, Ill., have successfully combined a 99.5 per cent Gilsonite Asphalt and special Valdura processed tung oil base with a fine aluminum paste and produced a ready-mixed aluminum paint, to be known as "Valdura Asphalt Aluminum Paint," that is said to require no special mixing and can be applied directly as it comes from the container.

Both accelerated and outdoor weather tests have shown that Valdura's ready-mixed formula is equally as durable as regular Valdura Asphalt Aluminum paint. This finish is particularly suitable for finishers who require speed and convenience.

The production of a practical ready-mixed aluminum paint automatically overcomes the inconvenience of mixing enough paste and vehicle for only a day's painting. It saves time and bother of stirring the paste into the vehicle and is said to prevent any danger of an improper proportion of paste and vehicle being used.

Mention PRODUCTS FINISHING when writing to advertisers.

Opportunity Section

THIS Opportunity Section is available for classified advertisements featuring equipment, employment, business opportunities, etc., in the industries devoted to the cleaning, plating, polishing and finishing of metals. For advertising rates and other information address:
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SALES AGENTS WANTED by distributor to sell degreasing chemical to industrials in New Jersey and Connecticut. Knowledge of degreasing machines and plating required. Industrial following desirable. Send full details, qualifications and references to Box 24, Products Finishing, 342 Madison Avenue, New York, N. Y.

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Booths—Fans—Transformers
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1509 Spring Garden St. Philadelphia, Pa.

for your CATALOG library

To obtain copies of the catalogs listed here, indicate on the coupon the number of the item in which you are interested and mail as directed.

1. Dust Collecting Systems

An attractive 24-page catalog has just been issued by The Kirk & Blum Mfg. Co., 2816 Spring Grove Ave., Cincinnati, Ohio, which illustrates and describes many K. & B. Dust Collecting Applications installed in numerous industries.

2. Improved Air Cleaning for Industry

A beautifully illustrated catalog describing the Centri-Merge Method of cleaning air is now being issued by Schmieg Sheet Metal Works, 314 Piquette Ave., Detroit, Michigan.

3. Speedip Whirl Enameler

A 4-page bulletin describing a combination dipping-whirling machine for completely coating large quantities of parts with lacquer, enamel, paint or any other liquid finishing material. Ronci Machine Co., 45 River Ave., Providence, R. I.

4. Hovey Spray Equipment

A 4-page catalog describing and illustrating Hovey Spray painting guns and painting outfits is now being issued by Hovey Spray Equipment Co., 1509 Spring Garden St., Philadelphia, Pa.

5. Protective and Decorative Finishes

Hilo Varnish Corporation, 42-60 Stewart Ave., Brooklyn, N. Y., presents Bulletin No. 15 titled, "The Five Hilo Rip-pls."

6. Economical Degreasing

A series of leaflets covering practically every phase of metal degreasing are now being published by Detroit Rex Products Co., 13017 Hillview Ave., Detroit, Michigan.

7. Portable Fire Extinguisher

A two-color 8-page bulletin describing the latest development in fire extinguishing equipment is now being issued by Walter Kidde & Company, Inc., 731 West St., Bloomfield, New Jersey.

8. Corrosion in the Refrigeration Industry

The corrosion treatment for combating corrosion effects of refrigerating brine is described in this 10-page catalog now being issued by Mutual Chemical Co. of America, 270 Madison Ave., New York, N. Y.

9. Lea Method of Finishing

A 20-page booklet devoted to the polishing and buffing of metals is now being issued by The Lea Manufacturing Co., 14 Cherry St., Waterbury, Conn.

10. Ross Metal Decorating Oven

A complete description of the equipment for baking decorative coatings on metal is now being issued by J. O. Ross Engineering Corporation, 350 Madison Ave., New York City.